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ABSTRACT

Presentations at the conference are given in this report and are entitled: Research in Agricultural Education--Past and Future; Relationship Between First-Year Teachers' Morale and Behavior; A Summary of the National Study of Competencies Required in Commercial Small-Fruit Production; Implementation of Career Education as Perceived by Administrators; Variation Among Occupational Interest Profiles and Choice of College Exhibited by Students at Texas A & M University; The Role of the Vocational Counselor in Texas as Perceived by Vocational Directors, Vocational Counselors, Secondary School Principals and Secondary School Counselors; The Intellective and Non-Intellective Characteristics of Undeclared and Declared College Students; The Vocational-Technical Education Consortium of States (V-Tecs)--Progress and Plans; Occupational Choice, Tenure and Selected Aspects of the Employment Patterns of Murray State University Graduates Qualifying to Teach Vocational Agriculture; Linear Programming for Education; and Development and Utilization of Videotaped Teaching Skills Models in Vocational-Technical Teacher Education. Program agenda, a list of participants, business minutes, and articles of agreement are appended. (NJ)

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Proceedings

Twenty-fourth Annual

SOUTHERN REGION
RESEARCH CONFERENCE
IN
AGRICULTURAL EDUCATION

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RESEARCH IN AGRICULTURAL EDUCATION
-PAST AND FUTURE-

Robert R. Price *

Today, I would challenge you to think about research, in a somewhat different manner than the more traditional approaches. Could we confine our references to research as defined for purposes of this presentation "those efforts and activities which we engage in and which are expected to eventually result in enthusiastic and committed people becoming more effective and proficient in the producation, marketing, servicing and processing of agriculture and agricultural products."

I make no apologies in taking as our guiding principles for research in agricultural education the major program objectives for vocational and technical education in agriculture as established by a joint U.S.O.E. and AVA committee in 1966. It is my strong conviction that these objectives, when we are willing to do so, can be fruitfully applied as criterion measures for research in Agricultural Education. Can we then say that the research projects which we conceive, develop and implement are designed for the purpose of eventually being a contributing factor in enhancing learning experiences and thus assisting selected people:

To develop competencies in production agriculture
To develop competencies in nonfarming agricultural occupations
To develop understanding of career opportunities in agriculture
To secure satisfactory placement and to advance in agriculture
To develop human relations abilities
To develop abilities for effective leadership

I should also call your attention to a quote which appeared in the Bulletin reporting committee conclusions. The publication, in turn, acknowledges the quote as lifted from a 1961 report of the Educational Policies Commission entitled The

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*Dr. Robert R. Price, Professor and Head, Emeritus, Agricultural Education Department, Oklahoma State University, Stillwater, Oklahoma.

Central Purpose of American Education.

> The purpose which runs through and strengthens all other educational purposes -- the common thread of education -- is the development of the ability to think. This is the central purpose to which the school must be oriented if it is to accomplish either its traditional tasks or those newly accentuated by recent changes in the world.
>
> More than ever before, and for an ever-increasing proportion of the population, vocational competence requires developed rational capacities. The march of technology and science in the modern society progressively eliminates the positions open to low-level talents. The man able to use only his hands is at a growing disadvantage as compared with the man who can also use his head.

You see, I have a concern that too much of our research today is almost wholly subject matter orientated at the expense of a "people" orientated basis. After all, for Vocational Agriculture and Agricultural Education, our product is competent, knowledgeable and, above all, enthuastic and self-adequate "people", -- people using their "rational capacities", which is our job as educators to develop, to provide our nation with needed agricultural goods and services.

In attempting to prepare for this assignment, so graciously given to the old retired Departmental Camel, I checked to see how many theses, dissertations and staff study reports adorn the shelves of our departmental research room. The forty year plus weighty accumulation now numbers 618, and when the Spring and Summer 1975 productions now winding their devious way through our Graduate College are returned, the expanding shelving will hopefully hold 639 gems of erudite script. No doubt this amassed production is surpassed in many of your own departments. As I looked at these shelves I wonder, how many of these studies has had any impact upon our vocational agriculture and agricultural education programs in Oklahoma? Well, some maybe, but if impact was associated with sophistication and verbosity I doubt not that we would find significance even with an application of a two or three tailed test!

Perhaps it would be profitable at this point to consider seriously how different people view a given research effort. How seriously do teachers consider research as

compared to supervisors, or how seriously do individuals in either of these groups consider research as compared to the teacher educator. Too many persons tend to say, Oh well, that's the business of the teacher educator. Supervisors, and particularily teachers, may quite often consider themselves too busy to be worried about research! Quite possibly, there may be somewhat of an element of truth in this allegation. But, now, when we speak of the business of "being busy" we are forced to consider both qualitative and quantative aspects of our efforts. A teacher, or for that matter, a supervisor could be actually operating on a relative poor basis of priorities as far as time and efforts expended. But, then again, who rightfully judges as to whether such an expenditure is good or otherwise? And then, even more frightful at times, is the prevailing tendency to discount any finding that is not wholly compatable with our own peculiar pattern of assessment. A group of graduate students discussing their professor advisors, reportedly came to the conclusion that if all AG ED teacher educator researchers were carefully measured and then laid end to end - it would be a good thing!

I now should like to center our thinking on research usage. What purposes are served by our efforts? Who should benefit from the research projects now underway at each of our institutions? An overly simplistic answer may be "our programs", should benefit, but "programs" must be dealt with as people, often groups of people with differentiated roles and job functions. Let us look at how supervisors and coordinators view research as of value to them. Often they may say, "Give me something which will help me convince our Legislature we need more funds" or sometimes supervisors may say, "How can we look a little better in our state compared to other states?" Now many teachers seem to have given up long ago any hope that they could benefit from research. Confronted from day to day with the immediate problems of motivation, student behavior, student performance, F.F.A. sponsorship, adult or Young Farmer activities, or playing shill-shally games with administrators, the teacher somehow has little interest or even patience with such

alledgedly research studies as "Perceptual Bases of Cognitive Recidivism Among Students Scoring Below the 25th Percentile on the F.O.G. Index." They sometimes kindly refer to researchers as sophisticated egg-heads who would fall flat on their anatomy if they tried to spend one day in the classroom!

And then, honestly now, how do we, as teacher educators, value research efforts. Oh, probably most of all we need to get abstracts and more abstracts in professional journals so that we can fare well when confronted with the "publish or perish" syndrome which, at most institutions, still demands genuflective subserviency! Even when we've moved from associate to full professor we still tend to seek to be a researcher of merit. Well, after all, what's wrong with that? Nothing, my fellow teacher educators, if we keep in mind that our primary mission is that of helping others, whether teachers, supervisors or fellow teacher educators do a better job providing learning experiences for students needing knowledge and skills in agriculture.

At your conference last year Rufus Beamer made a very fine presentation directed toward needed vocational education research in the Region. He identified and briefly discussed certain problem areas in vocational education needing research attention. Among these were:

(1) Financing
(2) Administration and Governance
(3) Articulation
(4) Marketable or Job Entry Skill
(5) Utilization of Facilities and Equipment
(6) Vocational Education and Manpower Needs
(7) Curriculum
(8) Follow-up Studies

He also mentioned but did not discuss:

1. Developing a master plan for vocational education in a state
2. The need for and desirability of Residential Vocational Schools
3. Guidance and Counseling services provided by our schools
4. Establishing and using lay advisory groups
5. Public information
6. Vocational Student Organizations
7. Professional personnel certification requirements

I certainly am in complete agreement with this listing, but I believe we might well add for prime consideration, Recruitment of and Sustaining Interest

Among Trainees. I would also like to lift up as calling for a strong research emphasis, Marketable or Job Entry Skills and Articulation. Currently, some three-fourths of our states are experiencing a shortage of qualified vocational agriculture teachers; in several instances a very severe and potentially crippling circumstance. For some of us who have been in the vo-ag program for many years it is quite shocking to discover that at several of our Land Grant Universities the number of individuals being qualified annually has reached a low point of only a dozen or less. Certainly, we can well afford to direct research efforts in this region toward finding: (1) What peculiar circumstances bring students to our respective institutions for pursuing preparatory programs; (2) What individuals, groups and organizations appear to be effective in the role of influentials for career choice as a vo-ag teacher; (3) What techniques have been found successful in student recruitment, and (4) How are students' attitudes toward and interest in preparatory programs developed and maintained?

I would suggest these four questions might well be affirmed by this Regional Conference as constituting a high priority area for investigation during the coming year.

In lifting up Articulation as an additional area for profitable research, I am suggesting that we may very well need to greatly improve our relationships with post-secondary institutions, both junior and senior colleges and universities, as well as with community colleges. The term "we" as used here not only refers to teacher educators, but supervisors and high school teachers as well. Most assuredly, the high school instructor needs to be better able to counsel with the 40 to 65% of his graduating students who will be matriculating at post-secondary or other higher education institutions soon after graduation. At many of our teacher education institutions we have 50% or more of our students coming to us as transfers from other institutions. Can we not profitably devote some research effort to the task of discovering ways and means of improving not only coordination of academic

programs but also efforts to provide for closer coordination of the other endeavors such as maintaining student interest, pride in accomplishment and achieving self-adequacy. For teacher educators, discovering ways of achieving such improved articulation may well be very closely related to the foregoing problem suggested, that of recruitment and maintenance of sustained student interest.

The other item which I would like to lift from Beamers' list of last year is that of Marketable or Job Entry Skill. I am rather sure that my particular reason for selecting this area as one needing emphasis at this time is somewhat at varience with Dr. Beamers' reason for posing it as an area for research concern. My viewpoint is that for vocational agriculture the very restricted interpretation of placement now being applied in evaluation systems for vocational education does result in our being viewed almost as a black sheep in the vocational-technical education family. The constraints imposed upon our Vo-Ag division program in so completely stressing the numbers trained for job entry level and further restricting measurement to those placed three months or less after completion of a program, pose a somewhat different kind of a threat than we may have previously experienced. To me, this almost makes mandatory giving our immediate attention to applying our most competent investagatory capabilities to attempt valid confirmation of an assumption which we have had in agriculture for many years, that high school level vocational agriculture experience does contribute substantially to the individuals' career decisions for agriculture, even though these may not be firmed up until after the high school experience. In this respect, vocational agriculture provides far more than an exploratory experience, because in addition, it essentially does assist the student in experiencing basic vocational learnings during the time of his "firming up" of career decision. We need to insist that evaluation based upon placement data also include a time dimension covering at least five years after program completion.

Perhaps in bringing this supposedly "key-noting" discourse to a close, I should

look again at the title given, "Ag Ed Research - Past and Future". I am afraid we have directed most of our remarks to the Present and Future. Therefore, let us go back -- in fact, away back, and list a few studies reported in a Summaries of Studies in Agricultural Education of forty years ago.

1. 1922 New York - Edens; Determining Emphasis in Training Teachers of Vocational Agriculture

2. 1922 Tennessee - Dorsey; The Relationship Between Scope and Size of Agricultural Projects to Profits and other Aims

3. 1927 Iowa - Deibert; The Validation of an Objective Achievement Test in Agriculture

4. 1928 Colorado - Colmer; The Efficiency of Programs of Agriculture of the County Agricultural High Schools in Mississippi

5. 1928 Virginia - Groseclose; Some Results of District Supervision

6. 1929 Florida - Garris; Does Intelligence as Determined by Otis Group Intelligence Test Have Anything to do with the Elective Subjects Chosen by High School Boys?

7. 1930 Kentucky - Hammonds; The Distribution of Time of Teachers of Vocational Agriculture

8. 1931 Virginia - Green; Job Contracts for Swine Production

I would submit that, surprisingly enough, our concerns of today quite often reflect the concerns of those researchers of that earlier era, including concerns regarding program evaluation, teacher education and supervision, student evaluation, time distribution, occupational experience, etc.

In this paper I have attempted to primarily stress values to be gained by establishing and maintaining a very close relationship with the USERS of our research.

Where and when practicable, let us even carry this to the point of involvement of potential users. Above all, we as researchers need to listen to these potential users and to the extent possible attempt to see needs through their eyes, be they administrators, supervisors, teachers, fellow teacher educators or others.

I find no better way of summing up this position than to again quote from the Summaries of Studies of forty years ago:

There are studies which have not been carried far enough so that supervisors, teacher trainers, or teachers can see how the findings may be used. Such studies may be of very high quality in every other respect. An example is a study which arrives at certain principles of curriculum construction but does not show teachers how these principles may be used to develop teaching materials. Some would object that it is not the function of the investigator to carry his conclusions to such detail. Nevertheless, studies of this kind will never attain their highest functional value until investigators or other persons carry the conclusions far enough so that the intended beneficiaries can see how to use them.

I salute you as present and future researchers in Agricultural Education. Your unique responsibilities are tremendous, but are, I am sure commensurate with not only your abilities but with your dedication and zeal, as well.

RELATIONSHIP BETWEEN FIRST-YEAR TEACHER'S MORALE AND BEHAVIOR

Larry E. Miller*

The purpose of this study was to determine the correlation between teacher morale and classroom behavior. The resulting information serves to delineate those variables involved in teacher morale that can predict teacher classroom behavior. The results can be used to provide guidance to teachers, student teachers and experienced teachers, who exhibit low morale showing that these characteristics may be being exhibited within the classroom and leading to other pedological teaching difficulties.

Teacher morale has been identified by many researchers as an important variable contributing to successful teaching. Bentley and Rempel state that morale is an imprecise although highly important term. Some authorities consider morale to be the emotional and mental reaction to a person to his job. The level of morale is determined by how an individual's needs are satisfied, the extent to which the individual perceives satisfaction as stemming from the total job situation. High morale is evident when there is interest in and enthusiasm for the job (1970:1). They continue by defining morale as the professional interest and enthusiasm that a person displays toward the achievement of individual and group goals in a given job situation (1970:2).

The comparison of teacher morale with performance is a commonly hypothesized association. This may not, in fact, be the case. However, if a correlation can be drawn from the relationship, it would provide useful

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information in predicting classroom performance on the basis of a teacher's morale.

STATEMENT OF THE PROBLEM

What relationship exists between first-year teachers of Agricultural Education's morale and their teaching behavior in the classroom?

DEFINITION OF TERMS

Relationship. The term relationship was defined in this study as the correlation between the dependent variables, morale and teaching behavior.

Morale. Morale was operationally defined as respondent's scores on a self-report inventory, the Purdue Teacher Opinionaire (PTO).

Teaching behavior. Teaching behavior was operationally defined as scores produced on the ten category system of "Flanders Interaction Analysis".

LIMITATIONS OF THE STUDY

The limitations of the study are:

1. Only Virginia first-year Agricultural Education teachers during 1973 were used in the study.

2. Only those first-year teachers enrolled in EDVT 5090, Problems in Education, at Virginia Polytechnic Institute and State University comprised the invited and data sample.

BASIC ASSUMPTIONS

The following basic assumptions apply:

1. It must be assumed that the respondents truthfully responded to the PTO.

2. It must be assumed that the classroom observers validly and reliably used the ten categories of the Flanders Interaction Analysis.

3. It must be assumed that the PTO is a valid and reliable instrument for the measurement of morale of the sample studied.

REVIEW OF LITERATURE

Blocker and Richardson ended their critical review of teacher morale research literature by saying, "There is need for studies of how morale is related to teacher performance. The assumption has been made that high morale will automatically bring improved performance; this may not necessarily be true (1963:208)." Robinson and Connors after reviewing research on job satisfaction in general, concluded: "The general consensus for several years favors the conclusion that job satisfaction and productivity are not related in a positive, significant way (1962:241)." However, recent literature does not indicate that these observations lead to exploration of the relationships existing between first-year teacher morale and teacher behavior.

Greenwood and Soar (1973) discerned from a study of thirty-nine elementary teachers that rather than involving pupils that low morale teachers tend to take the easy approach to teaching and talk themselves.

Amidon and Flanders (1963) point out that interaction analysis is concerned with verbal behavior only, primarily because it can be observed with higher reliability than can nonverbal behavior. The assumption is made that the verbal behavior of an individual is an adequate sample of his total behavior.

On this bases these two variables were deemed worthy of investigation in this study.

PROCEDURES

DESIGN

A posttest only design was employed to gather the data for this study.

SAMPLE

The invited sample were all first year teachers of Agricultural Education

enrolled in EDVT 5090, Problems in Education, during the 1973-74 academic year (N-33). The accepting (responding and data) sample of the study was 29 on the PTO and 27 on the Flanders' Interaction Analysis.

INSTRUMENTATION

Teacher morale was determined using a self-report technique. The instrument used was the "Purdue Teacher Opinionaire" (PTO). The PTO is a 100-item self-report, teacher morale instrument (Bentley and Rampel, 1970) that yields ten factor scores and a total score. Reliability of the instrument, in terms of Kuder-Richardson internal consistency coefficients, have been established ranging from .79 to .98 with an overall coefficient .96, test-retest correlations are .87 for the total score.

Teacher behavior will be determined by using the 10 category system of "Flanders' Interaction Analysis." Reliability of this technique depends upon the training of the observers. /McGaw (1972), Medley (1963)/ and Ober (1968). The observers in this study will be the professional staff in the Agricultural Education Program at VPI & SU, who have been trained in the use of interaction analysis.

The validity of the PTO and the interaction analysis technique can only be established in terms of their "face" validity, and their wide acceptance within the educational community.

CONDITIONS OF TESTING

The PTO was administered at the Spring small group class meetings of those students enrolled in EDVT 5090 in a classroom setting.

The interaction analysis took place during the VPI & SU Agricultural Education staff member's all-day visit to the school as a part of EDVT 5090. This enabled the professor to select a classroom setting for the use of the technique during that day-long visit. Three to five minute time periods

twenty and forty minutes into the class period were arbitrarily selected for data gathering by the visiting professor.

TREATMENT

Although in the purest interpretation of the term, no real treatment existed, subjects were tested by virtue of the fact that they were first-year teachers of Agricultural Education and had completed most of one year in that profession.

DATA ANALYSIS

Norm group comparisons for junior and senior high school teachers are presented. Mean and median data were calculated on the PTO. The information gathered by the Flanders Interaction Analysis was first subjected to frequency counts of the recordings made by the visiting professors. The frequency counts were grouped by taking the ten categories and grouping them into the four groups (Amidon, Flanders, 1963) of silence of confusion, student talk, teacher indirect talk or teacher direct talk. The proportion of each, as it made up the total time sample, was then calculated.

RESULTS

The following portions of the paper contains the results of the study. A norm group comparison is also made for the total of the factors. A profile of the PTO responses for similar groups of junior and senior high school teachers is also presented.

A final report encompassing the total ten factors is available under the same title from the author.

Retyped at The Center for Vocational Education, The Ohio State University.

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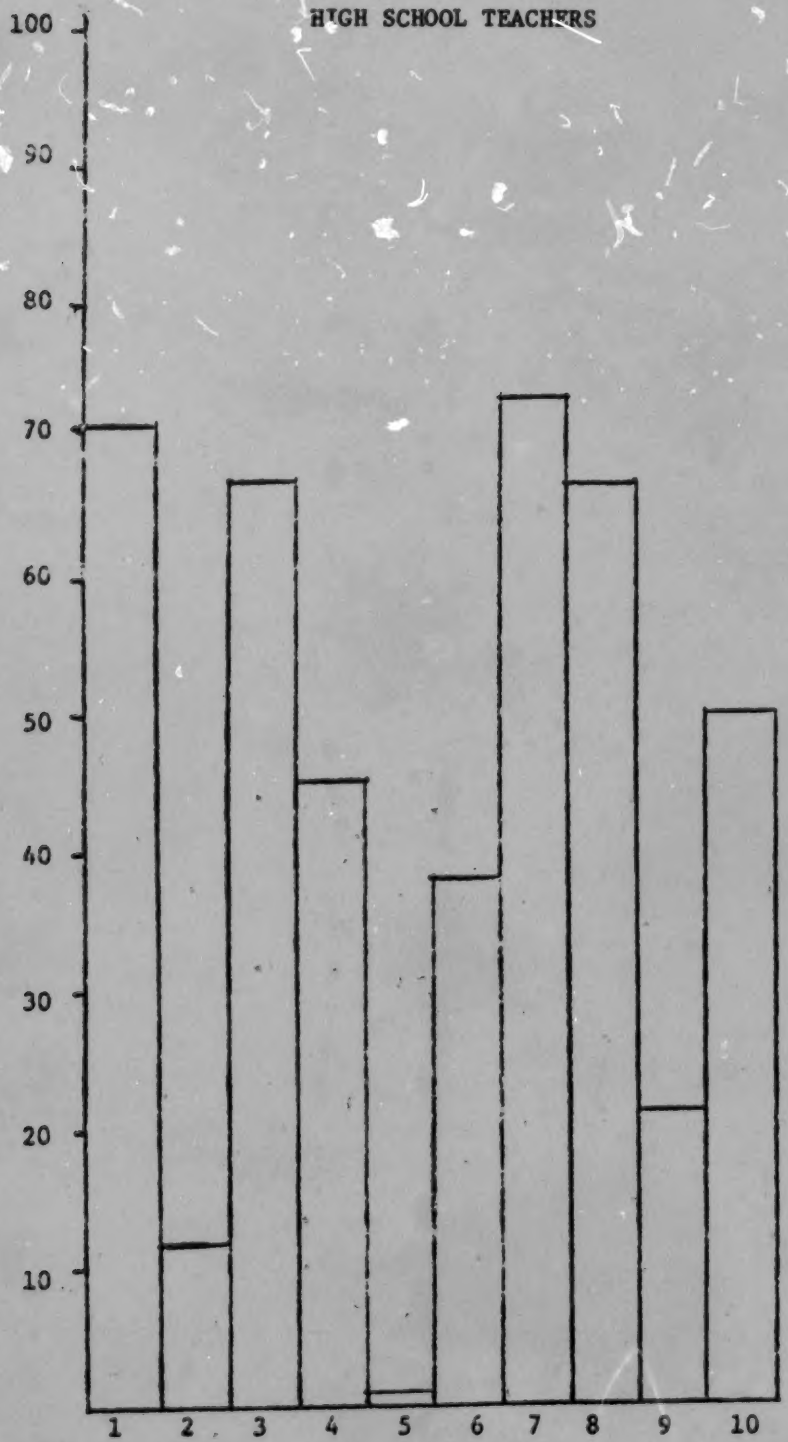
PERCENTILE NORM PROFILE COMPARISON CHART

WITH REPRESENTATIVE JUNIOR AND SENIOR

HIGH SCHOOL TEACHERS



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Scatterplot of Purdue Teacher Opinionaire
with Flanders' Interaction Analysis Grouping
of Student Talk

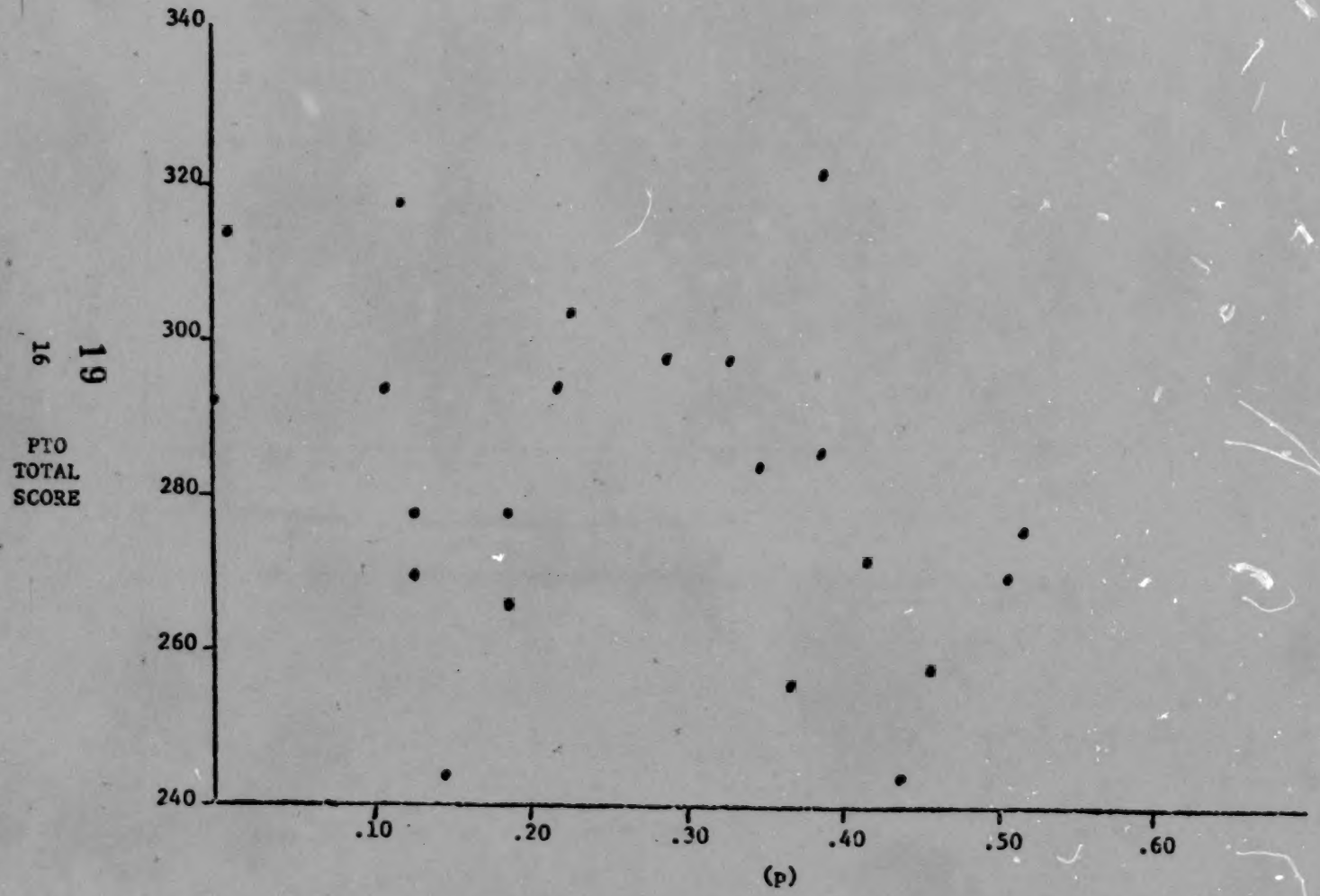

Table 1

Correlation of Purdue Teacher Opinionaire
with Flanders' Interaction Analysis
Groupings

Grouping	PTO
Teacher Talk - Direct	+.17
Teacher Talk - Indirect	+.20
Teacher Talk - Total	+.18
Student Talk	-.52
Silence or Confusion	+.07

SUMMARY

Using a posttest only design, data were gathered from first-year teachers enrolled in EDVT 5090 at VPI & SU during the 1973-74 academic year. The independent variable was being a first-year teacher, and the dependent variables were assessed by using the Purdue Teacher Opinionaire and the 10 category system of Flanders' Interaction Analysis. Thirty-three students were enrolled in the course. The data sample was comprised of twenty-nine for the PTO and twenty-seven for the Flanders' Interaction Analysis. The data were presented in the preceding chapter. This portion of the paper will attempt to draw conclusions from that data and results and make recommendations based upon them.

CONCLUSIONS

"Teacher Rapport with Principal": This factor deals with the teachers' feelings about the principal. The comparison of the first-year Agricultural Education teacher's ratings with the norm groups is noteworthy. In no case do they exceed the ninetieth percentile. A large number of the item medians fell between the tenth and fiftieth percentile of the norm groups. Attention should also be given to the overall rating on the factor and to the profile comparison with representative junior and senior high school teachers. The overall median rating is 3.43 for the factor. This is below the fiftieth percentile. When compared with a representative group of junior and senior high school teachers, the first-year teachers located at the seventy-first percentile. These data would seem to indicate that the respondents did not possess as secure a working relationship with their principals as the norm group. The representative comparison group illustrates that twenty-nine percent of the norm population would have better rapport with their principal than the group studied.

"Satisfaction with Teaching" is the second concern. Total factor comparison indicates that the median response for the factor was below the tenth percentile. Norm group comparison places the median response at the twelfth percentile. Particularly of concern should be the low level of item responses dealing with looking at other occupations, job competency, love of teaching, choosing teaching as a career, "stresses and strains" of the position, and job satisfaction as reported in the final report. The 3.36 median score for the item necessitates its further study.

"Rapport Among Teachers": This factor shows the median response as 3.34; and Norm group Comparison places this factor at the sixty-seventh percentile.

"Teacher Salary" pertains primarily to the teachers' feelings about salaries and salary policies. Again the factor illustrates that the median responses fell between the tenth and fiftieth percentiles. In general, it shows that the median response was 2.61. This is at the forty-fifth percentile, meaning that fifty-five percent of the norm teacher group are more satisfied with salaries and salary policies than were the respondents.

Teacher load deals with such matters as record-keeping, clerical work, community demands, extra-curricular load and keeping up-to-date professionally. Particularly low scores were noted on items dealing with "red tape" and required reports, community demands, teaching loads, hours of teaching and the class being a "dumping ground" for problem students in the final report. Taking the factor in general, shows a median rating of 2.73. The factor is at the first (1) percentile as compared to representative teachers. This is the lowest recorded factor of any. It requires the immediate attention of all associated with education. It is evident from these findings that a serious look must be taken at Agricultural Education teachers' loads.

"Curriculum Issues" noted a median response of 2.75, this to is at the thirty-eighth percentile.

"Teacher Status": This illustrates the greatest variation of responses to items as compared to the norm group. The respondents were below the tenth percentile on the item dealing with job security, and above the fiftieth percentile on four items in the final report. The factor deals with security, prestige and benefits afforded by teaching. Note a 3.10 median; this places it at the seventy-eighth percentile. This was the highest percentile comparison made.

"Community Support of Education" deals with community understanding and willingness to support a sound educational program. The overall median for the item is 3.08. This places it at the sixty-seventh percentile.

"School Facilities and Equipment:" This factor is concerned with the adequacy of facilities and efficiency of procedures for obtaining materials and services. The factor had an overall rating of 2.49 which placed it at the twenty-first percentile. The adequacy of aids and equipment afforded the highest median response, with the adequacy of clerical services the lowest in the final report.

"Community Pressures" relates to community expectations regarding a teacher's personal standards, participation in outside-school activities and freedom to discuss controversial issues in the classroom. The final report shows this item to have a median response of 3.42, which is below the fiftieth percentile. The figure shows the factor, as compared to a representative group of junior and senior high school teachers, to be at the fiftieth percentile. The lowest item response was indicated to having their nonprofessional activities outside of school unduly restricted. The highest response indicated that pressures from the community did not restrict

their teaching effectiveness.

Table I presents the correlation coefficients resulting from analysis of the PTO and the Flanders' Interaction Analysis Groupings. It should be noted that all coefficients would be classified as low except for the coeficient resulting from the correlation of student talk with the PTO. The .52 coefficient would be categorized as moderate, at best. A scatterplot of this correlation is also presented. The direction of slope is negative and the magnitude of correlation is .52. This could indicate, with moderation, that the results propose that as respondent's morale (total score on PTO) decreased the more students were allowed to talk during class; or conversely, as respondent's morale increased the less students were allowed to talk.

RECOMMENDATIONS

The problem of this study was to determine "What relationship exists between first-year teachers of Agricultural Education's morale and their teaching behavior in the classroom?" The results section, Table I, revealed only one moderate correlation coefficient resulting from the analysis. This was the correlation coefficient resulting from a comparison of student talk with respondent's total scores on the PTO. The remaining groupings all revealed low correlations with the PTO total score.

A very real concern should be conceptualized from this study concerning the results derived from the PTO. If indeed the PTO evaluates teacher morale, and its validity is lent credence by its acceptance in the educational community, then the results from the sample of first-year Agricultural Education teachers is of exigent concern. It has been illustrated that the respondents were consistently below the fiftieth percentile, and far below the tenth percentile on factor five, teacher load; and factor 2, satisfaction with teaching. Those associated with education must take a serious look at

the factors contributing to these low medians.

The tenet has long been maintained, publicized and advertised that Agricultural Education teachers are, as a group, a contented, happy lot, with high morale. The findings of this study would indicate that this is not the case for the first-year teachers studied. Steps must be taken to ameliorate the difficulties that are encountered by first-year teachers that contribute to the detrimental results obtained.

The first-year teachers of Agricultural Education studied scored much lower on all factors of the PTO than anyone associated with teacher training, supervision, or administration would have liked to have seen. This phenomena must be further researched to compare this group with others in Agricultural Education and Vocational Education.

Being a correlational study, it is not feasible to draw from it casual relationships. The question remains as to whether teacher behavior is casual to teacher morale or vice versa, or whether a third factor affects both. When such relationships are shown to exist, then job satisfaction will become a more viable concern of the profession. ". . . the effect may be moderated to a greater or lesser degree by deep-seated personality traits and belief systems (Greenwood and Soar, 1973:107)."

The overall significance of the findings of this study should alert those in Agricultural Education to the low level of morale that exists in the field among first-year teachers. Steps must be taken to further study the problem and resolve the dilemma.

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A SUMMARY OF THE NATIONAL STUDY OF COMPETENCIES REQUIRED IN COMMERCIAL SMALL-FRUIT PRODUCTION

Maynard J. Iverson*

Recently, while talking with my family physician, I responded jokingly to his complaints of "too much to do," by saying that I would be glad to help him--for a cut of the loot. He looked at me and said, "Fine, but what can you do?" Obviously, I was unable to perform the tasks of a physician and therefore did not get the job. This is what competency based education is all about.

The recent emphasis on competency-based vocational education prompted the development of a National Committee on Agribusiness Occupations Competencies. In 1974 this group organized a project aimed at development of competency lists in the major areas of agriculture. My report covers one sub-area, commercial small-fruit production.

Fruits represent a major food stuff in the world market place. In 1967 over 202 million metric tons of fruit were produced. Grapes, strawberries and raspberries are the leading small-fruit crops in the U.S., but the blueberry is becoming more important because it can be grown in otherwise worthless acid soils. The growth of the frozen food industry and mechanized harvesting has given bramble fruit an improved future outlook.

Much information is available on the small-fruit crops, and yet has not found its way into instructional programs or field work to the extent it deserves. Small fruits are widely adaptable, yet are concentrated in

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certain areas of the country. High production per acre and quickness of bearing make the small fruit crops ideal for the small farmer, the beginner, or the part-time farmer. Increased public demand for fresh fruit and new interest in road-side markets and customer-pick operations have increased the profit potential and reduced labor requirements. Mechanization of harvesting and other jobs has also reduced the hitherto high labor cost. Improved varieties and better cultural practices have increased yeilds even though acres in production have remained the same, or, in some areas, declined. Clearly, opportunities exist for expansion of this segment of the agricultural scene. Educational programs designed to orient and assist present and potential producers of small-fruit crops are the best means to fill the void.

Traditionally, Vocational Education in Agriculture has provided instructional programs designed to fit individuals to gainful employment in recognized agricultural occupations. Recent emphasis on production agriculture (a result of the threat of food shortages) gives new importance to broadening the vocational agricultural program in production agriculture to include preparation of commercial operators of small-fruit production enterprises.

To provide an instructional program which will meet the needs of the present or prospective producer, it is first necessary to identify the competencies (knowledge and skills) required for success in the occupation. Through occupational analysis, a list of competencies can be developed and verified by incumbent workers (operators of small-fruit production enterprises).

Objectives

The primary objective of the study was to identify and validate competencies needed by commercial producers of the major small-fruit crops (blackberries, blueberries, grapes, raspberries and strawberries) in the

United States.

LIMITATIONS

When attempting to generalize the findings of this study, the following limitations should be considered:

1. The sampling of growers was restricted by resources of the researcher. Findings may be somewhat biased by the failure of some to respond to mailed surveys. It was not possible to conduct a randomized follow-up of non-respondents.
2. Comprehensive lists of commercial producers were sometimes not available, thus the Extension Specialist furnished names of those with whom he was familiar, perhaps resulting in only major producers being contacted.
3. The questionnaire allowed few write-in items, the form may have restricted the response to those already listed.
4. Only those small-fruit crops of significant national worth and scope were included in the study.
5. Competencies may reflect biases and thus not be appropriate for all parts of the country.

SCOPE OF THE STUDY

This was a national study which included commercial producer of blueberries, blackberries, grapes, raspberries and strawberries in the 10 leading mainland states in production of each of the specific fruits. The study was conducted during the period July 1, 1974 to June 30, 1975.

PROCEDURES

Organization of the Study

Using the procedural guidelines for the National Project and in

consultation with his colleagues in the Department of Vocational Education, the writer developed and followed the procedures listed below:

1. Identify occupation to be studied.
2. Prepare a job description.
3. List competencies through job analysis (review of literature and interview experts)
4. Select in-state review group (ISRG)
5. Validate initial competency list with ISRG
6. Revise list based on ISRG input.
7. Identify National review group (NRG).
8. Submit competency list (via survey instrument to NRG.)
9. Analyze responses.
10. Prepare a report of findings.

At the outset of the project it was decided, in consultation with department staff and the State Department of Education, to study competencies in an area of economic importance and with future potential for Kentucky. Since the Commonwealth had once been in the top ten states in strawberry production, and has a climate well suited to growing small fruits, it was decided to investigate competencies in this area of production. From the preliminary review of literature, it was determined that a large gap existed between management-level personnel and unskilled field workers in the number and kinds of competencies requiring training in agriculture, therefore, it was decided to concentrate on the commercial producer (owner, operator, manager) of small fruits.

The initial list of competencies was developed through a review of literature including texts, research reports and extension bulletins, and consultation with Department of Horticulture staff members. At the suggestion

TABLE 1

LEADING[a] STATES IN THE PRODUCTION OF THE FIVE SMALL FRUITS

	Grapes	Strawberries	Blackberries	Raspberries	Blueberries
Arizona	X				
Arkansas	X	X	X		X
California	X	X			
Florida		X			
Maine					X
Maryland				X	
Massachusetts					X
Michigan	X	X	X	X	X
Minnesota				X	
Missouri	X		X		
New Jersey			X	X	X
New York	X	X	X	X	X
North Carolina		X	X		X
Ohio	X	X		X	
Oklahoma			X		
Oregon		X	X	X	X
Pennsylvania	X			X	
South Carlina	X				
Texas			X		
Washington	X	X	X	X	X
Wisconsin		X		X	X

[a]The ten top-producing states are listed alphabetically for each small fruit.

TABLE 2

RESPONSES TO THE SURVEY BY COMMERCIAL PRODUCERS OF SMALL FRUIT

	Small Fruit					
	Blue-berries	Black-berries	Grapes	Rasp-berries	Straw-berries	All Fruits
Total Producers Identified	67	9	83	44	119	322
Useable Responses	40	3	69	34	33	179
Percentage of Response	59.7%	33.3%	83.1%	77.3%	27.7%	56.6%

TABLE 3

STATES REPRESENTED BY RESPONDENTS TO THE QUESTIONNAIRE

States	NO. RESPONDENTS PRODUCING					TOTAL
	Blue-berries	Black-berries	Grapes	Rasp-berries	Straw-berries	
Arizona			6			6
Arkansas	1	1	3		3	8
California			5		4	9
Florida	2				2	4
Maryland				3		3
Massachusetts	2					2
Michigan	7		5	2	1	15
Minnesota				4		4
Missouri			6			6
New Jersey	4					4
New York	5		9	4	7	25
North Carolina	3		6		3	12
Ohio			7	4	4	15
Pennsylvania	2		9	7	6	24
South Carolina			3			3
Texas		2				2
Washington	6		5	7		18
Wisconsin				1	3	4
Not Identified	8	-	5	2	-	15
TOTAL	40	3	69	34	33	179

of Extension personnel, specific surveys were developed for each small-fruit crop. Additional improvements were made through interviews.

The in-state review group was identified by means of a request to the Cooperative Extension agent in each of the 120 counties of Kentucky to supply the names and addresses of all commercial producers of the five berry crops. A stratified random sample (by county and type of fruit) of the 276 producers in Kentucky resulted in 57 responses.

The national review group (NRG) was identified by contacting Extension horticulturists in the ten high-producing states for each fruit crop. The twenty-one states and the small fruits for which they are leaders are shown in Table 1. The state contact persons were asked to supply a complete list of producers in the specific small fruit crop(s), or lacking such a list, to randomly select ten producers representative of all others in the state. As can be seen in Table 2, there were 322 producers from 19 states identified for validating competencies of the five small-fruit crops. A cover letter explaining the purpose of the study and a postage-paid, return-addressed envelope was included along with the rating instrument. After 10 days, a follow-up letter, another copy of the questionnaire and a return envelope were sent out to the entire group. One hundred seventy-nine or 56.6 percent responded. Their distribution by states appears in Table 3.

The data were transferred to mark-sense forms and analyzed by computer.

FINDINGS

Job Description

Through the review of literature the following job description was developed:

> The commercial producer of small fruit is a person competent in managerial and technical skills needed to carry out timely approved practices resulting in maximum profit from the small-fruit enterprises. These skills are needed by owners, managers and operators. The broad competency areas needed by small fruit producers are:
> --Planning for Production, including acquiring technical knowledge, managing finances, site and variety selection, and site preparation;
> --Growing small fruits, including soil preparation, propagation and planting, fertilization, pest control, machinery selection and maintenance; and
> --Harvesting, processing, storing and marketing small fruits, including those operations involved in commercial marketing or operating a pick-your-own outlet.

Characteristics of Respondents

Tables 4, 5, and 6 provide information about respondents in the national review group.

TABLE 4

CHARACTERISTICS OF COMMERCIAL PRODUCERS PARTICIPATING IN THE STUDY[a]

	Fruit				
Factor	Blue-berries	Black-berries	Grapes	Rasp-berries	Straw-berries
Acres Grown	71.8	55.0	92.3	9.5	25.7
Years Experience	20.8	29.3	18.2	15.3	20.4
Annual Yield/A	3482 qt.	2390 qt.	592 bu.	101 bu.	10490 qt.
No. Part-Time Workers	95.4	14.5	31.6	26.9	95.2
No. Full-Time Workers	5.5	2.0	6.3	13.8	9.5

[a]Figures represent averages of all respondents.

TABLE 5

PRIMARY MARKET OUTLETS REPORTED BY PRODUCERS OF SMALL FRUIT WHO RESPONDED TO THE QUESTIONNAIRE

Market Outlet	Number of Producers of: Blue-berries	Black-berries	Grapes	Rasp-berries	Straw-berries
Pick-your-own outlet	21	2	11	21	24
Harvest and ship to wholesaler	12	1	18	5	5
Harvest and deliver to marketing cooperative	12	-	35	4	3
Harvest, grade, pack and sell to retailers	10	1	10	3	2
Market through roadside fruit stand	9	1	6	11	11
Process on farm into consumer products	2	-	8	4	1
Market through own retail store	6	1	3	8	3

TABLE 6

FUTURE PLANS INDICATED BY PRODUCERS OF SMALL FRUIT WHO RESPONDED TO THE QUESTIONNAIRE

Plan to:	No. and Percent of Producers of: Blue-berries	Black-berries	Grapes	Rasp-berries	Straw-berries	All Fruits
Expand Operation	22 (57.9%)	1 (33.3%)	27 (40.9%)	14 (43.7%)	16 (50.0%)	80 (46.8%)
Decrease Acreage	3 (7.9%)	1 (33.3%)	2 (3.0%)	1 (3.1%)	2 (6.2%)	9 (5.3%)
Continue about the Same Size	13 (34.2%)	1 (33.3%)	37 (56.1%)	17 (53.1%)	14 (43.8%)	82 (47.9%)

Competencies Verified as Necessary to Producers of the Five Small Fruits

In order to be considered a "needed competency," an item had to have a mean rating of 2.5 or above on a scale of 5 = essential, 4 = important, 3 = of some importanct, 2 = not important, and 1 = does not apply. In blackberry production 49 competencies were rated as needed by members of the NRG. Fifty items were rated above 2.5 level; competencies to blueberry producers; in grape culture, 53 competencies have been ranked above the 2.5 cut-off mark by the 69 respondents to the survey; thirty-three producers of raspberries rated 52 items as necessary competencies in their commercial operation. Strawberry producers found 53 competencies needed by commercial operators--35 of which were considered to be "essential or important."

When considering responses from all producers of small fruit, 36 items were ranked above 2.5 for all small fruits, seven of which were rated as "important" or "essential" for any small-fruit grower. The greatest number of validated competencies, 15, appeared in the area of growing small fruit; planning and marketing had 9 and 12, respectively. These data are shown in Table 7.

CONCLUSIONS

The following conclusions were drawn from the review of leterature and the findings of the study:

1. Much information exists regarding skills, practices and techniques in producing small fruits; however, this information is not widely utilized or put into educational programs.
2. There are 36 competencies commonly needed by producers of all small fruit, while a number of additional competencies are specific to one or more of the small-fruit crops.
3. The marketing and growing phases of operating a small-fruit business

Table 7

COMMON COMPETENCIES NEEDED IN COMMERCIAL SMALL-FRUIT PRODUCTION
AS INDICATED BY PRODUCERS OF THE FIVE MAJOR FRUITS

Competencies--The Producer:	Mean Rating[a] by Producers of: Blueberries N=40	Blackberries N=3	Grapes N=69	Raspberries N=33	Strawberries N=33
1. Plans to grow small fruit:					
a. Analyzes personal characteristics, education, and background in fruit production.	3.5	2.7	3.4	3.6	3.6
b. Realizes his shortcomings and works to overcome them through study and consultation with experts.	4.0	3.3	4.7	4.1	4.4
c. Calculates profit potential in establishing the small fruit enterprise.	4.1	3.3	4.3	4.3	4.1
d. Determines costs in establishing and operating the small fruit planting.	4.2	3.3	4.5	4.3	4.4
e. Selects appropriate site for the small fruit planting.	4.7	3.7	4.6	4.6	4.6
f. Prepares the site for long-term utilization in small fruit (grading, terracing, installing tile, or draining).	4.2	3.5	4.4	4.4	4.1
g. Selects proven, disease-resistant, locally adapted, high-producing varieties of plants which are suitable for the chosen markets.	4.5	4.5	4.4	4.8	4.9
h. Lays out the planting plan.	4.0	2.5	4.0	4.2	4.2
i. Upgrades knowledge of fruit production through "trade" journals, technical meetings, grower associations, etc.	3.7	2.5	3.9	4.0	4.1
2. Grows small fruit:					
a. Prepares soil for planting (cultivation, acidification, fertilization).	4.4	4.0	4.4	4.7	4.6
b. Secures planting stock.	4.4	5.0	4.5	4.7	4.5
c. Prepares stock for planting.	3.4	3.5	4.5	4.2	3.9
d. Plants or transplants the stock properly.	4.0	4.0	4.4	4.5	4.6
e. Gives extra care to developing plants.	3.9	3.5	4.2	4.3	4.3
f. Cultivates the small fruit planting.	3.5	4.5	4.0	4.2	4.4
g. Controls unwanted vegetation with herbicides.	4.0	3.0	3.6	4.2	4.6
h. Controls insect pests and related organisms in the small fruit planting.	4.5	3.0	4.2	4.5	4.6

[a]Ratings were on a scale of 5 = Essential; 4 = Important; 3 = Of Some Importance; 2 = Not Important; 1 = Does not Apply. Only those rating a mean of 2.5 or above were listed.

Table 7, Continued

Competencies--The Producer	Mean Rating[a] by Production of: Blueberries N=40	Blackberries N=3	Grapes N=69	Raspberries N=33	Strawberries N=33
i. Controls diseases in the small fruit planting.	4.5	3.0	4.6	4.7	4.6
j. Controls bird and animal pests.	4.2	2.5	3.9	3.7	3.7
k. Trains the plant for ease of handling and optimum production.	3.7	3.5	4.3	3.8	3.5
l. Maintains proper soil reaction through liming or acidification.	3.9	2.5	3.5	3.8	3.7
m. Repairs, maintains, and replaces machinery and equipment used in fruit production.	4.0	5.0	4.2	4.0	3.9
n. Mixes and applies chemicals properly.	4.5	5.0	4.6	4.8	4.8
o. Provides strict safety and control of pesticides and other chemicals used in the operation.	4.4	5.0	4.4	4.8	4.8
3. Harvest, processes, stores and markets small fruit:					
a. Plans for proper timing of harvest to catch blueberries at their prime stage of ripeness.	4.3	4.0	4.4	4.6	4.4
b. Secures adequate picking containers.	4.1	3.7	4.0	4.0	4.5
c. Secures qualified pickers in sufficient numbers per acre.	3.7	3.5	3.7	4.4	4.0
d. Adjusts harvesting equipment for minimum damage to the small fruit.	3.8	4.7	4.2	3.4	3.0
e. Supervises the pickers for careful handling of the crop.	4.1	3.3	3.8	4.6	4.5
f. Provides shelter for newly-picked small-fruit.	4.0	5.0	3.2	4.1	4.1
g. Processes small fruit for fresh market.	3.5	3.0	2.7	2.8	2.7
h. Packs small fruit containers to proper fullness.	3.7	4.0	3.1	3.7	4.0
i. Arranges for refrigerated shipping to distant markets.	3.6	2.7	2.9	3.2	2.7
4. Operates a pick-your-own (customer picks) outlet.					
a. Plans for staggered ripening of small fruit.	4.0	4.0	3.1	3.8	4.0
b. Provides supporting facilities such as roads, parking, playground, restrooms, drinking fountains, convenient scales and check-out, etc.	3.6	3.0	2.9	4.2	4.3
c. Provides containers.	3.6	2.7	3.1	3.8	3.9

are considered by producers to require more necessary skills than are those in planning.

4. The number and nature of competencies considered to be necessary by producers of different fruit crops tends to be greater than variation among producers of the same crop.
5. The basic list of competencies can be utilized on the state and national levels for curriculum development. The list can also be utilized by local teachers to develop specialized programs of instruction and individualized study programs.

RECOMMENDATIONS

Based on the study, the researcher recommends:

1. That Extension personnel develop comprehensive lists of commercial producers of small fruit in their states to facilitate exchange of ideas, research and educational advancement.
2. That the competencies identified in this study be utilized in curriculum development in vocational agriculture and in teacher education programs.
3. That teachers of vocational agriculture expand their curriculum to include the exploration of the opportunities and development of competencies in small-fruit production.
4. That curriculum guides and other instructional material be developed and distributed on a regional or national basis to meet the needs and potential of the small-fruit production area.

IMPLEMENTATION OF CAREER EDUCATION AS PERCEIVED BY ADMINISTRATORS

Charles B. Jones*

The purpose of this investigation was to acquire the opinions of experienced school administrators and regional service center coordinators of career education in order to develop a basis for recommendations related to coordinating and planning for implementing career education in public schools in Texas. Specific objectives to accomplish this purpose were:

1. To determine if differences exist in the perception of regional service center coordinators of career education, superintendents, and vocational directors in regard to elements, concepts, and principles of the career education movement.

2. To determine the present status of supervision of career education and if differences exist in the perception of regional service center coordinators of career education, superintendents, and vocational directors in regard to who should have supervisory and decision-making roles when implementing career education.

3. To determine the perception of regional service center coordinators of career education, superintendents, and vocational directors in regard to approaches to be used in implementing career education.

4. To determine the association between school size and perceptions held by superintendents and vocational directors regarding career education.

5. To develop a list of recommendations for planning and coordinating the implementation of career education programs.

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Definition of Terms

Terms used in this investigation were defined as follows:

Element. One of the constituent parts of career education such as career awareness, employability skill, or self-awareness.

Principle. An elementary proposition, fundamental assumption, or guiding influence of career education.

Concept. A mental image of an action or that which approaches to an idea of career education.

Career education program. One of the fundamental building blocks of the career education model such as career exploration, skill preparation, occupational awareness, or occupational investigation.

Career Education. A process that represents the total effort of public education and the community to help all individuals become familiar with the value of a work oriented society, to integrate those values into their personal value structure, and to implement those values in their lives in ways that make work possible, meaningful, and satisfying to each individual.

Regional service center coordinator of career education. That individual within each regional service center that is primarily responsible for assisting local school districts in implementing programs of career education.

Approaches to Career Education. How the career education curriculum is superimposed upon the ongoing structure. It may include a separate class or laboratory as well as interdisciplinary methods. Approaches also include the grade level at which each may be implemented.

Research Procedure

In this study 35 different school districts and 20 regional service centers were contacted to obtain data. Either the superintendent or

vocational director or both administrators from 34 of these districts responded and 17 of the 20 regional service centers did likewise. A total of 73 responses were returned. These respondents were selected because they had been funded and had experience in implementing career education programs.

An instrument was designed to access the intensity of the respondents' opinions about elements, concepts, and principles of career education. The instrument also contained sections that did the same for supervision and decision-making and approaches to implementing programs of career education. The insturment was mailed with personally addressed letters asking for assistance in this study.

When responses were returned, the instruments were evaluated and numerical values assigned to each response. An analysis of variance was run on each item comparing the responses of superintendents, vocational directors, and regional service center coordinators of career education. Certain null hypotheses were tested to determine if significant differences existed in the responses of those assessed. Similarities were also noted so that this information could be utilized in making recommendations.

Section I of the instrument was designed to give directions as well as determine who in each organization surveyed had the supervisory and decision-making role.

Section II was designed to obtain data from superintendents, vocational directors, and coordinators of career education regarding their perception of the elements, concepts, and principles of career education.

Section III was designed to obtain responses from superintendents, vocational directors, and coordinators of career education regarding their perception of the approaches taken to implement career education.

Section IV was designed to obtain data regarding the perception of superintendents, vocational directors, and coordinators of career education toward who should have the supervisory and decision-making roles when schools implement career education.

Statistical treatment was also carried out to determine if the size of the school district had any effect on the responses of the individuals surveyed. Districts were classified as large, medium, or small depending upon their average daily attendance.

Summary of the Findings

Regional service center coordinators of career education, superintendents, and vocational directors generally agreed on elements that should be included in career education. These were:

1. Career awareness will lead to career identity.
2. Career awareness is a vital part of career education.
3. Career education includes teaching decision-making skills.
4. Career awareness includes teaching of the economic processes.
5. Career education will lead to an understanding and possible solution of personal and social problems in an economic environment.
6. Career education emphasizes skill awareness and develops competency in employment skills.
7. Social and communication skills appropriate to career placement are vital parts of career education.
8. Career education emphasizes the perception of the relationship between education and life roles.
9. Career education will solve many of the problems of the school.
10. Career education will have influence on the social ills of our communities.

11. Career education should be integrated into educational experiences provided by the school.
12. Career education is appropriate for all students at all levels of education.
13. Career education will not detract from other worthy educational goals that now exist.
14. Learning environments cannot be restricted to the classroom.
15. Self-assessment is necessary to provide decision-making experience to support career education.
16. Career education must include a total commitment by school personnel with all teachers emphasizing career implications.
17. Occupational orientation experiences will need to be utilized as a method of teaching and motivating the learning of abstract academic content.
18. Career education must involve business, labor, and private employers.

There were differences in how regional service center coordinators of career education, superintendents, and vocational directors perceive who should supervise and make decisions when implementing programs of career education. Respondents did agree, however, that occupational exploratory classes should be under the supervision of the person designated as the career education director.

There were differences in how regional service center coordinators of career education, superintendents, and vocational directors perceived of the approaches that ought to be used when implementing programs of career education; however, they did agree that:

1. Occupational awareness programs ought to be implemented in the kindergarten and continue through grade six.

2. Occupational awareness should be interdisciplinary in nature and not treated as a separate class.
3. Occupational awareness activities should utilize community resources extensively.
4. There is a need for occupational investigation activities to be implemented in public schools.
5. Occupational investigation should be implemented at the 7th and/or 8th grade level.
6. The occupational cluster approach should be used in teaching the occupational investigation courses.
7. Community resources should be extensively utilized in teaching the occupational investigation course.
8. Occupational exploratory classes that provide "hands on" experiences should be offered in public schools.
9. Occupational exploratory classes should be offered at the 9th and 10th grade level.
10. There should be an interdisciplinary approach to occupational exploration.
11. A combination of "hands on" and interdisciplinary approaches should be used in implementing exploratory programs.
12. Opportunities for further exploration should be provided in high school at the 11th and 12th grade even though "hands on" exploration is available in the 9th and 10th grade.
13. A comprehensive placement and follow-up program should be available in all schools graduating students from high school.
14. Community resources should be extensively utilized in preparing students for work or further training and education.

15. The vocational-technical department of high schools should not be the only source of occupational preparation.

There is no association between school size and perceptions held by superintendents and vocational directors regarding elements, concepts, and principles of career education.

There is no association between school size and how superintendents and vocational directors perceive of who should have supervisory and decision-making roles when implementing programs of career education.

There are a variety of organizational structures and titles for those charged with implementing career education. Regional service centers generally called those responsible "coordinators of career education," while vocational directors were involved in all school systems in implementing programs of career education.

There is no association between school size and how superintendents and vocational directors perceive of approaches to be used in implementing programs of career education.

Conclusions

The underlying hypothesis of this study was that there were differences in how school administrators and regional service center coordinators of career education perceived of elements, concepts, and principles of career education, who should have supervisory and decision-making roles, and how these programs should be implemented. It was also hypothesized that there was an association between school size and how superintendents and vocational directors involved would respond to statements related to career education.

Because of the findings of this study, the following conclusions appear to be appropriate:

1. There are generally no differences in how regional service center coordinators of career education, superintendents, and vocational directors perceive of the elements, concepts, and principles of career education. Consequently, the hypothesis that differences exist cannot be supported.
2. There are differences in how regional service center coordinators of career education, superintendents, and vocational directors perceive who should supervise and make decisions when implementing programs of career education. Consequently, the hypothesis that differences exist can be supported.
3. There are differences in how regional service center coordinators of career education, superintendents, and vocational directors perceive of the approaches that ought to be used when implementing programs of career education. Consequently, the hypothesis that differences exist can be supported.
4. There is no association between school size and perceptions held by superintendents and vocational directors regarding elements, concepts, and principles, who should have supervisory and decision-making roles, and approaches to implementing career education programs. It is therefore concluded that the hypothesis that school size affected responses cannot be supported.

Recommendations

Based upon the findings of this study, the following recommendations seem to be appropriate:

1. The State Board of Education should authorize the Texas Education Agency to develop a more detailed policy statement regarding the implementation of career education.

2. The Texas Education Agency should clarify the purpose of career education.
3. Local school districts should utilize the available career education resources provided by the regional service centers.
4. Local school districts should execute a comprehensive inservice education program design to redirect the curriculum to an understanding of career education and its role in the educational process.
5. Local school districts should utilize community personnel and resources in implementing career education.
6. Career education should include people of all ages, all grades in the school, and the teaching of self-assessment and decision-making skills.
7. Occupational awareness should be taught on an interdisciplinary basis, occupational investigation should be required of all students, and the cluster approach utilized as a means of informing students about occupations.
8. Occupational exploratory courses should be offered in the ninth and tenth grade and vocational courses should be available for exploratory purposes as well as for occupational preparation.
9. A comprehensive placement and follow-up program should be developed in all local districts and adequate funding provided to implement this program.
10. The chief administrative officer in local education agencies should designate a supervisor for career education who will be responsible for decision-making and implementation.
11. There should be a plan for evaluating local, regional, and state activities related to career education.

VARIATION AMONG OCCUPATIONAL INTEREST PROFILES AND CHOICE OF COLLEGE EXHIBITED BY STUDENTS AT TEXAS A&M UNIVERSITY

Jay P. Grimes*

Each year more than 4,000 recent high school graduates enter Texas A&M University and must make a single choice from the array of college degree programs that are available. Operating on the assumption that occupational interests are an influential factor in the selection of an educational program, the Academic Counseling Center of the Univeristy administers the Lee-Thorpe Occupational Interest Inventory to entering freshmen each year. Through the years the results of the inventory have been used as a counseling device in an effort to assist new students in making informed choices.

Two studies, conducted approximately 20 years ago, indicated the existence of significant differences in college degree group mean scores on the Occupational Interest Inventory. McPhail found significant differences in interest scores of 3128 liberal arts, chemistry, and engineering students at Brown University in 1954. In 1955, Kingston and Ewens made similar findings in a study of 188 agriculture, business administration, and engineering freshmen at Texas A&M University. As the years have gone by the occupational interests of students choosing colleges within the university other than agriculture, business administration, and engineering were not examined for distinctive variations. The limitation in the use of the instrument for counseling in regard to choice of college became apparent. In addition, a review of the literature showed that the Occupational Interest Inventory had received relatively little formal research consideration when compared with contemporary interest inventories and that a degree of reservation had been expressed

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concerning its ability to indicate probable educational choices. In light of the instruments's lengthy and extensive use at Texas A&M University, these points appeared to provide adequate justification for additional investigation involving the inventory.

Purpose

The primary purpose of the investigation being reported was to determine the degree and location of differences existing in the interests of entering freshmen for a contemporary sample across a wider range of degree aspirations than that considered in earlier studies. The underlying hypothesis for the study was that distinctive differences exist in the inventoried occupational interests of undergraduate students and that those differences are associated with initial choice of college degree program.

Research Procedure

The instrument. The instrument used for data collection was the Lee-Thorpe Occupational Interest Inventory developed by E. A. Lee and L. P. Thorpe and published by the California Test Bureau. The instrument is composed of 240 paired and 30 triad forced-choice items that the publishers state, ". . . appraise and analyze the vocationally significant interests of the individual." The inventory results are divided into three categories; Fields of Interest, Types of Interest and Level of Interests. The Fields of Interest category is composed of six components or scales; Personal-Social, Natural, Mechanical, Business, The Arts, and The Sciences. The Types of Interest category consists of three scales providing scores for Verbal, Manipulative, and Computational interest. The third category, Level of Interests, indicates functional level of interest categorized as high, average, or low which may also be interpreted as professional, technical or operational.

Subjects. A total of 2043 freshmen students entering Texas A&M University for the 1971-72 academic year comprised the sample for the study. Each subject completed the Occupational Interest Inventory during the summer of 1971. The students enrolled in the following colleges of the University; Agriculture, Business Administration, Liberal Arts, Education, Sciences, Geosciences, Architecture, Engineering, and Veterinary Medicine. Distribution of the subjects among the several colleges are shown in Table I.

Data Compilation and Analysis. Individual scores on the ten scales of the Occupational Interest Inventory were determined and grouped by choice of college. Degree group mean scores were calculated for each scale of the inventory and are also shown in Table I. A total of 36 comparisons were made between the group mean scores using the Scheffe multiple comparison test.

TABLE I

OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS

COMPONENT	MEAN SCORES BY DEGREE GROUPS								
	Agriculture (n=206)	Business Admin. (n=159)	Liberal Arts (n=260)	Education (n=36)	Sciences (n=303)	Geosciences (n=63)	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=233)
Personal-Social	15.5	19.4	21.4	24.4	19.5	16.7	16.3	15.3	17.9
Natural	31.3	17.1	18.6	16.3	18.9	19.9	17.0	18.4	29.5
Mechanical	19.5	16.4	16.4	15.7	17.7	19.2	23.5	23.5	16.3
Business	14.9	28.8	21.6	21.9	15.8	15.0	17.1	18.1	14.5
The Arts	12.0	16.2	19.2	21.4	15.6	15.2	21.9	13.3	12.8
The Sciences	22.1	18.1	19.1	17.1	27.4	27.8	20.0	26.6	24.5
Verbal	10.1	18.9	18.6	21.0	13.7	11.6	13.6	11.1	11.2
Manipulative	9.6	12.6	13.0	16.7	13.7	12.4	14.3	11.3	17.1
Computational	13.2	21.9	17.3	16.5	16.1	16.4	15.0	17.6	13.3
Level of Interests	67.8	69.8	70.1	64.4	72.5	71.3	71.6	72.6	69.8

Major Findings

Statistically significant differences were found on one or more scales of the Occupational Interest Inventory in 35 of the 36 possible degree group pairings. The College of Agriculture degree group exhibited the greatest number of significant variations. A total of 44 significant variations were found; with agriculture varying from business admnistration and liberal arts amjors on eight of the ten scales. The College of Geosciences degree group exhibited a total of only 19 significant variations with the widest variation being on five scales when compared to the College of Education group. No significant variation was found among the nine degree groups on the Level of Interests scale of the instrument.

To facilitate examination of the individual degree group mean scores and their relationship to one another, a series of nine tables were constructed. Each table presents the mean raw scores of a single degree group on the ten interest scales with significantly different scores of the other eight groups expressed as raw score points above or below the base mean.

College of Agriculture. Table II presents the results of comparisons between the College of Agriculture degree group and each of the other eight groupings. The Natural Field of Interest and Manipulative Type of Interest appear to be "key" scales for this degree group. The agriculture group scored significantly higher than all other groups on the Natural scale with the exception of veterinary medicine and significantly lower than all other groups, except geosciences, on the Manipulative scale.

TABLE II
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS
COLLEGE OF AGRICULTURE VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUP							
	Agriculture (n=204)	Business Admin. (n=159)	Liberal Arts (n=260)	Education (n=34)	Sciences (n=303)	Geosciences (n=63)	Architecture (n=94)	Engineering (n=701)	Veterinary Medicine (n=221)
Personal-Social	15.5	+3.9*	+5.9**	+8.5**	+4.0**				
Natural	31.3	-14.1**	-12.6**	-14.9**	-12.3**	-11.3**	-14.2**	-12.8**	
Mechanical	19.5		-3.1*				+3.5*	+4.0**	-3.2*
Business	14.9	+13.9**	+6.7**	+7.1*				+3.3*	
The Arts	12.0	+4.2*	+7.2**	+9.4**	+3.5*		+8.9**		
The Sciences	22.1	-4.0*			+5.3**	+5.6*		+4.4**	
Verbal	10.1	+8.8**	+8.5**	+10.9**	+3.6**		+3.5*		
Manipulative	9.6	+2.9**	+3.4**	+7.1**	+4.1**		+4.7**	+1.7*	+2.6**
Computational	13.2	+8.7**	+4.3**		+2.8*			+4.4**	
Level of Interests	67.8								

*Significant at the .05 level
**Significant at the .01 level

Sheffé test adapted by B. G. Barker

College of Business Administration. The Business Field of Interest and Computational Type of Interest as shown by Table III appear to be "key" scales for the business administration degree group. This group scored significantly higher on both these scales than any of the other eight groups.

TABLE III
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS COLLEGE OF BUSINESS ADMINISTRATION VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUP							
	Business Admin. (n=159)	Liberal Arts (n=260)	Education (n=36)	Sciences (n=383)	Geosciences (n=43)	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=221)	Agriculture (n=204)
Personal-Social	19.6						-4.0**		-3.9*
Natural	17.1							+12.4**	+14.1**
Mechanical	16.4					+6.8**	+6.8**		
Business	30.8	-7.2**	-6.8*	-12.9**	-13.7**	-11.6**	-10.6**	-14.4**	-13.9**
The Arts	16.2					+3.8**		-3.5*	-4.2*
The Sciences	18.1			+9.3**	+9.6**		+8.4**	+6.4**	+4.0*
Verbal	18.9			-5.1**	-7.3**	-5.3**	-7.8**	-7.7**	-8.8**
Manipulative	12.6		+4.2*						-2.9**
Computational	21.9	-4.4**	-5.4*	-5.9**	-5.5**	-6.9**	-4.3**	-8.6**	-8.7**
Level of Interests	69.8								

*Significant at the .05 level
**Significant at the .01 level Shaffe' test adapted by B. G. Barker

College of Liberal Arts. Table IV indicates that the "key" scales for the liberal arts group were the Business Field of Interest and Verbal Type of Interest. The group scored higher on both the Business and Verbal scales than the other groups except for business administration and education majors.

TABLE IV
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS
COLLEGE OF LIBERAL ARTS VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUP							
	Liberal Arts (n=260)	Education (n=36)	Sciences (n=303)	Geosciences (n=63)	Architecture (n=96)	Engineering (n=781)	Veterinary Medicine (n=231)	Agriculture (n=204)	Business Admin. (n=159)
Personal-Social	31.4			-4.8*	-51.**	-6.1**	-3.3**	-3.9**	
Natural	18.6						+10.9**	+12.6**	
Mechanical	16.6					+7.1**			
Business	21.6		-5.8**	-6.6**	-4.5*	-3.5**	-7.1**	-6.7**	+7.2**
The Arts	19.2		-3.6**			-5.9**	-6.4**	-7.2**	
The Sciences	19.1		+8.3**	+8.7**		+7.5**	+5.5**		
Verbal	18.6		-6.9**	-6.9**	-4.9**	-7.5**	-7.6**	-8.5**	
Manipulative	13.0	+3.7*				-1.8*		-3.6**	
Computational	17.5						-6.2**	-6.3**	+6.6**
Level of Interests	78.1								

*Significant at the .05 level
**Significant at the .01 level Sheffe' test adapted by B. G. Barker

College of Education. If "key" scales existed for the education group they appear to be the Verbal and Manipulative Types of Interest as indicated in Table V. The education group exhibited a significantly higher mean score on the Verbal scale than the other groups, excepting business administration and liberal arts. The group mean was also significantly higher on the Manipulative scale than the other groups except for the science and architecture groups.

TABLE V
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS COLLEGE OF EDUCATION VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUP							
	Education (n=36)	Sciences (n=383)	Geosciences (n=63)	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=821)	Agriculture (n=204)	Business Admin. (n=159)	Liberal Arts (n=260)
Personal-Social	24.4		-7.8**	-8.1**	-9.1**	-6.3*	-8.9**		
Natural	16.3					+13.2**	+14.9**		
Mechanical	15.7			+7.7**	+7.8**				
Business	21.9	-6.1*	-6.9*			-7.5**	-7.1*	+6.8*	
The Arts	31.4				-8.1**	-8.7**	-9.4**		
The Sciences	17.1	+10.3**	+10.7**		+9.5**	+7.3*			
Verbal	21.8	-7.3**	-9.4**	-7.4**	-9.9**	-9.9**	-10.9**		
Manipulative	16.7		-4.4*		-5.9**	-4.6**	-7.1**	-4.2*	-3.7
Computational	16.5							+5.4*	
Level of Interests	44.4								

*Significant at the .05 level
**Significant at the .01 level

Shaffe' test adapted by B. G. Barker

College of Sciences. Table VI shows the strong similarity of interest scores between the sciences and the geosciences degree groups. No significant differences were found between the two groups. The Sciences scale of the inventory reflected the greatest variation with the sciences degree group scoring higher than agriculture, business administration, liberal arts, education, and architecture.

TABLE VI
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS COLLEGE OF SCIENCE VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUP							
	Sciences (n=383)	Geosciences (n=63)	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=221)	Agriculture (n=204)	Business Admin. (n=159)	Liberal Arts (n=260)	Education (n=36)
Personal-Social	19.5			-4.2**		-4.0**			
Natural	18.9				+10.5**	+12.3**			
Mechanical	17.7		-3.8**	+5.8**					
Business	15.8			+2.3*			+13.7**	+5.8**	+6.1*
The Arts	13.6		+6.4**	-2.3*		-3.3*		+3.6**	
The Sciences	27.4		-7.4**			-5.3**	-9.3**	-8.3**	-10.3**
Verbal	13.7			-2.6**	-2.6*	-3.6**	+5.2**	+4.9**	+7.3**
Manipulative	13.7			-2.6**		-4.1**			
Computational	16.1				-2.8*	-2.8*	+3.9**		
Level of Interests	72.5								

*Significant at the .05 level
**Significant at the .01 level Sheffe' test adapted by B. G. Barker

College of Geosciences. Table VII shows that the geosciences group varied significantly from the greatest number of other degree groups on The Sciences Field of Interest scale. It should be noted that although the profile of this group closely resembles that of the sciences degree group, fewer significant differences were found between geosciences, agriculture, and engineering than between sciences, agriculture, and engineering. The geosciences group also varied from the education group on five scales (Personal-Social, Business, The Sciences, Verbal, and Manipulative) while the sciences group varied on only three (Business, Sciences, and Verbal).

TABLE VII
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS COLLEGE OF GEOSCIENCES VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUPS							
	Geosciences (n=43)	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=221)	Agriculture (n=304)	Business Admin. (n=139)	Liberal Arts (n=360)	Education (n=36)	Sciences (n=303)
Personal-Social	16.7						+4.8*	+7.8**	
Natural	19.9			+9.6**	+11.3**				
Mechanical	19.3		+6.2*						
Business	15.0					+13.7**	+6.6**	+6.9*	
The Arts	15.2	+6.8*							
The Sciences	27.8	-7.7**			-5.6*	-9.6**	-8.7**	-10.7**	
Verbal	11.6					+7.3**	+6.9**	+9.6**	
Manipulative	12.4							+6.6*	
Computational	10.4					+8.5**			
Level of Interests	71.5								

*Significant at the .05 level
**Significant at the .01 level

Sheffe' test adapted by B. C. Barker

College of Architecture. The Arts Field of Interest appears to be the "key" scale for the architecture degree group as reflected by the comparisons presented in Table VIII. The group scored higher on this scale than did the other groups except liberal arts and education. The Personal-Social and Verbal scales indicate significant differences, with liberal arts and education scoring higher than architecture.

TABLE VIII
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS
COLLEGE OF ARCHITECTURE VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUPS							
	Architecture (n=96)	Engineering (n=701)	Veterinary Medicine (n=221)	Agriculture (n=204)	Business Admin. (n=159)	Liberal Arts (n=260)	Education (n=34)	Sciences (n=303)	Geosciences (n=63)
Personal-Social	16.3					+5.1**	+8.1**		
Natural	17.0		+12.3**	+14.2**					
Mechanical	23.5		-7.2**	-3.9*	-6.8**		-7.7**	-5.8**	
Business	17.1				+11.6**	+4.4*			
The Arts	21.9	-8.7**	-9.2**	-9.9**	-5.8**			-6.4**	-6.8*
The Sciences	20.0	+6.5**	+6.5*					+7.6**	+7.7**
Verbal	13.6			-3.5*	+5.3**	+6.9**	+7.4**		
Manipulative	14.3	-3.1**		-4.7**					
Computational	13.0				+6.9**				
Level of Interests	71.6								

*Significant at the .05 level
**Significant at the .01 level

Shaffe' test adapted by B. C. Barker

College of Engineering. The Mechanical Field of Interest seems to be the "key" scale for the engineering degree group. This group scored significantly higher on that scale, as can be seen in Table IX, than did all the other eight degree groups. Although this group scored higher than the agriculture, business administration, liberal arts, education, and architecture groups on The Sciences scale; these differences do not appear to make the engineering group distinctive from the sciences group.

TABLE IX

DIFFERENCES BETWEEN OCCUPATIONAL INTEREST IMPORTANT COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS COLLEGE OF ENGINEERING VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUPS							
	Engineering (n=705)	Veterinary Medicine (n=121)	Agriculture (n=284)	Business Admin. (n=139)	Liberal Arts (n=268)	Education (n=36)	Science (n=103)	Geosciences (n=43)	Architecture (n=96)
Personal-Social	15.3	+2.0*		+4.0**	+6.1**	+9.1**	+4.2**		
Mineral	20.4	+12.3**	+12.0**						
Mechanical	23.3	-7.3**	-6.0**	-6.5**	-7.1**	-7.0**	-5.0**	-4.2*	
Business	18.1	-3.7**	-3.2*	+10.6**	+3.5**		-3		
The Arts	13.3				+3.9**	+8.1**	+1.2*		+6.7**
The Sciences	26.6		-4.6**	-8.6**	-7.3**	-8.3**			-6.3**
Verbal	11.1			+7.8**	+7.3**	+9.9**	+8.6**		
Manipulative	11.3		-1.7**		+1.0*	+3.3**	+2.6**		+3.1**
Computational	17.6	-4.3**	-4.4**	+4.3**					
Level of Interests	72.6								

*Significant at the .05 level
**Significant at the .01 level

Scheffe' test adapted by R. G. Barker

College of Veterinary Medicine. Table X shows that the veterinary medicine degree group attained a mean score on the Natural Field of Interest scale that indicated it as the "key" scale for this group. With the exception of the agriculture group, veterinary medicine scored significantly higher on the Natural scale than the other degree groups. Although the veterinary medicine group's interests closely approximated those of the agriculture group, two significant differences were found. Veterinary medicine scored higher on the Manipulative scale and lower on the Mechanical scale than the degree group selecting the College of Agriculture.

TABLE X
DIFFERENCES BETWEEN OCCUPATIONAL INTEREST INVENTORY COMPONENT MEAN SCORES OF TEXAS A&M UNIVERSITY DEGREE GROUPS
COLLEGE OF VETERINARY MEDICINE VS. OTHER GROUPS

COMPONENT	MEAN SCORE	DIFFERENCES ABOVE (+) AND BELOW (-) MEAN SCORE BY DEGREE GROUPS							
	Veterinary Medicine (n=221)	Agriculture (n=204)	Business Admin. (n=139)	Liberal Arts (n=260)	Education (n=36)	Sciences (n=303)	Geosciences (n=43)	Architecture (n=96)	Engineering (n=701)
Personal-Social	17.9			+3.5**	+6.5*				-2.6*
Natural	29.5		-12.4**	-10.9**	-13.2**	-10.5**	-9.4**	-12.5**	-11.1**
Mechanical	16.3	+3.2*						+7.2**	+7.2**
Business	14.5		+14.3**	+7.1**	+7.5**				+3.7**
The Arts	12.8		+3.5*	+6.4**	+8.7**			+9.2**	
The Sciences	24.5		-6.4**	-5.5**	-7.5*			-4.5*	
Verbal	11.7		+7.7**	+7.4**	+9.9**	+2.6*			
Manipulative	12.1	-2.6**			+4.6**				
Computational	13.3		+8.6**	+4.2**		+2.8*			+4.3**
Level of Interests	**								

*Significant at 1% level
**Significant at

Bhattacharyya test adapted by R. G. Barker

Summary and Conclusions

The group mean scores attained by the 2043 subjects would appear to indicate the Lee-Thorpe Occupational Interest Inventory is capable of providing distinctive interest patterns for at least seven of the nine degree groupings considered. The agriculture and veterinary medicine groups exhibited significanlty high scores on the Natural Field of Interest scale. The Mechanical Field of Interest items set the engineering group apart. The liberal arts group was unique in its high mean scores on both the Business and Verbal scales. The degree group from business administration was distinctive due to their comparatively high Business and Computational scale mean scores. The distinctive interest characteristic of the architecture degree group was manifested on The Arts scale. The sciences and geosciences groups both scored high on The Sciences scale, but were the least distinctive in interest pattern of the nine groups considered. The Verbal and Manipulative Type of Interest scales provided the measure indicating the distinctive interests of the education group. Therefore, in so far as the degree groups considered are representative of college freshmen in general, it can be concluded that distinctive variations do exist in inventoried occupational interests, as measured by the Lee-Thorpe Occuaptional Interest Inventory, and that such differences are associated with choice of specific colleges within a university.

THE ROLE OF THE VOCATIONAL COUNSELOR IN TEXAS AS PERCEIVED BY VOCATIONAL DIRECTORS, VOCATIONAL COUNSELORS, SECONDARY SCHOOL PRINCIPALS, AND SECONDARY SCHOOL COUNSELORS

Jimmy G. Cheek*

Texas initiated funding of vocational counselor units under the Minimum Foundation Program in the 1970-71 school year as provided for in Texas House Bill 263. Since that time, the role of the vocational counselor in the public schools of Texas has generated debate and captured the attention of the Texas Education Agency, vocational educators, counselor educators, and other public school personnel.

If an effective vocational counseling program is to be implemented in local school districts, it is essential that role perceptions among vocational directors, vocational counselors, secondary school principals, and secondary school counselors be congruent since their role perceptions are of paramount importance in determining the framework in which the vocational counselor's responsibilities are executed. It was not known whether agreement regarding the role of the vocational counselor existed; consequently, it was imperative that pertinent information be obtained and analyzed regarding the perceptions persons in these four positions held concerning the role of the vocational counselor.

Purpose

The central purpose of this study was to identify the role of the vocational counselor in the public schools of Texas as perceived by vocational directors, vocational counselors, secondary school principals, and secondary

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school counselors. To achieve this purpose the following objectives were developed:

1. Determine areas of agreement and disagreement among vocational directors, vocational counselors, secondary school principals, and secondary school counselors regarding the role of the vocational counselor in Texas.

2. Determine opinions concerning selected issues pertaining to the position of vocational counselor in Texas as perceived by vocational directors, vocational counselors, secondary school principals, and secondary school counselors.

3. Determine areas of agreement and disagreement concerning the role of the vocational counselor in Texas as perceived by vocational counselors with vocational education teaching experience but without world-of-work experience, vocational counselors without vocational education teaching experience but with world-of-work experience, and vocational counselors with both vocational education teaching experience and world-of-work experience.

4. Determine areas of agreement and disagreement concerning the role of the vocational counselor in Texas as perceived by secondary school counselors with vocational education teaching experience but without world-of-work experience, secondary school counselors without vocational education teaching experience but with world-of-work experience, secondary school counselors with neither vocational education teaching experience nor world-of-work experience, and secondary school counselors with both vocational education teaching experience and world-of-work experience.

5. Identify selected background characteristics of the vocational counselors in Texas.

6. Determine who the immediate supervisor of the vocational counselor should be, who currently exerts the greatest influence upon the role of the

vocational counselors, and where the vocational counselor's office should be located as perceived by vocational directors, vocational counselors, secondary school principals, and secondary school counselors.

A review of the literature resulted in the formulation of a theoretical base for the study which in turn led to the development of four null hypotheses stemming from objectives one through four. Hypotheses were not developed regarding objectives five and six.

Research Procedure

Closed-form opinionnaires were developed, field-tested, and refined in order to obtain requisite data from the four respondent groups. Opinionnaire reliability was determined using a test-retest method, with a week interval between tests. Section I of the opinionnaire consisted of 70 role statements and 10 issue statements regarding the vocational counselor and was responded to on a five point Likert scale ranging from: 1-Strongly Disagree to 5-Strongly Agree. Section II obtained pertinent background data concerning the respondents.

Data were received from 99 school district sets which consisted of returned opinionnaires from the vocational director and a vocational counselor, secondary school principal, and secondary school counselor from the same school district. These represented 82 percent of the school districts in the population. Analysis of variance with the Scheffe test was used to test the four null hypotheses which stemmed from the first four objectives. The hypothesis associated with objective one was also tested using the Wilks' Lambda portion of the multiple discriminant analysis routine. The .05 level of significance was set for accepting the null hypotheses of equal perceptions among respondent groups. Data pertaining to objectives five and six were analyzed using descriptive statistics.

Major Findings, Conclusions, and Implications

Major findings and conclusions with concomitant implications were derived from data collected pertaining to the six objectives and the four hypotheses tested in this study. For brevity, major findings will not be reported when the conclusions sufficiently describe the findings.

Objective One, Hypothesis One

Based on the findings of this study, it was concluded that the null hypothesis could be accepted at the .05 level of significance in regard to 26 role statements. The hypothesis was rejected in regard to 44 role statements and the alternate hypothesis was accepted that there were differences among the perceptions of vocational directors, vocational counselors, secondary school principals, and secondary school counselors regarding the role of the vocational counselor in Texas.

Further, the hypothesis that there are no differences among the perceptual profiles, across 70 role statement variables, of vocational directors, vocational counselors, secondary school principals, and secondary school counselors was rejected at the .01 level of significance and the alternate hypothesis that there were differences among perceptual profiles, across 70 role statement variables, of the four respondent groups was accepted.

The Scheffe test revealed that vocational directors and secondary school counselors varied significantly at the .05 level with respect to 21 role statements, vocational directors and secondary school principals differed significantly with respect to 19 role statements, and vocational directors and vocational counselors had significantly different means pertaining to 11 role statements. Furthermore, significant differences were found between vocational counselors and secondary school principals regarding six role

statements, vocational counselors and secondary school counselors regarding four statements, and secondary school counselors and secondary school principals regarding nine role statements. Therefore, it was concluded, on the basis of the Scheffe test, that the dyads of vocational directors and secondary school counselors on the one hand and vocational directors and secondary school principals on the other hand expressed more disagreement with respect to the role of the vocational counselor than did the dyads of vocational directors and vocational counselors, vocational counselors and secondary school principals, vocational counselors and secondary school counselors, and secondary school counselors and secondary school principals.

Implications. Since different perceptions existed and the null hypothesis could not be supported, an implication exists that potential conflicts among vocational directors, vocational counselors, secondary school principals, and secondary school counselors concerning the role of the vocational counselor in Texas exist which could result in morale problems, stress, and internal conflict in local school districts which in turn could defeat the purpose of having a vocational counselor in the first place. Also, an implication exists that a systematic effort needs to be exerted in local school districts in Texas employing these four groups of individuals with regard to defining the role of the vocational counselor resulting in a more congruent role definition. Furthermore, because many school districts rely upon the Texas Education Agency for direction in planning programs in local school districts, an implication exists that the Texas Education Agency should develop a strategy that not only would result in defining more clearly the role of the vocational counselor in Texas, but would also ensure greater acceptance of the vocational counselor's role among vocational directors, vocational counselors, secondary

school principals, and secondary school counselors. Also, since polarization regarding the role of the vocational counselor tended to exist between vocational directors and secondary school principals and between vocational directors and secondary school counselors, an implication exists that potential conflicts among these groups could result in unharmonious working relationships which could be counter-productive in local school districts.

Objective Two, Hypothesis Two

Based on the findings of this study, it was concluded that null hypothesis two, which stated that there are no differences among perceptions of vocational directors, vocational counselors, secondary school principals, and secondary school counselors regarding opinions concerning selected issues pertaining to the position of vocational counselor in Texas, was rejected at the .01 level of significance for each of the 10 issue statements. Thus, the alternate hypothesis that there were differences among the four groups was accepted for each issue statement.

The Scheffe test revealed that vocational directors and secondary school principals differed significantly with respect to nine of the issue statements and vocational directors and secondary school counselors varied significantly regarding each issue statement. The results also showed that vocational counselors and secondary school counselors had significantly different means for each of 10 issue statements. Further, significantly different means were obtained at the .05 level for vocational directors and vocational counselors regarding one issue statement, vocational counselors and secondary school principals varied significantly with respect to four issue statements, and secondary school principals and secondary school counselors differed significantly regarding three issue statements. Therefore, it was concluded

that the dyads of vocational directors and secondary school counselors, vocational directors and secondary school principals, and vocational counselors and secondary school counselors expressed more disagreement with respect to the 10 issue statements than did dyads of vocational directors and vocational counselors, vocational counselors and secondary school principals, and secondary school principals and secondary school counselors.

Implications. The conclusion reached with respect to hypothesis one coupled with the conclusion reached regarding hypothesis two give rise to the implication that potential conflicts exist among the four groups which not only could result in morale problems, stress, and internal conflict in local school districts at the present time, but also in the future as different issues emerge. Also, since polarization tended to exist between vocational directors and secondary school counselors, vocational directors and secondary school principals, and vocational counselors and secondary school counselors with regard to the 10 issue statements, the implication exists that the greatest possibility of potential conflicts exist with respect to these three groups. This implication, in conjunction with the last implication listed pertaining to hypothesis one, leads to the futher implication that the greatest potential conflict regarding the role and position of vocational counselor in Texas exists between vocational directors and secondary school counselors on the one hand and between vocational directors and secondary school principals on the other hand.

Objective Three, Hypothesis Three

Three vocational counselors did not provide sufficient data for classification and only one vocational counselor indicated having vocational education teaching experience without world-of-work experience. Consequently, the null

hypothesis that was tested for each of the 70 role statements was that there are no differences in perceptions concerning the role of the vocational counselor in Texas between vocational counselors without vocational education teaching experiences but with world-of-work experience and vocational counselors with both vocational education teaching experience and world-of-work experience.

As a result of the findings of this study, it was concluded that null hypothesis three was accepted at the .05 level of significance in regard to 57 role statements. The hypothesis was rejected at the .05 level of significance regarding 13 role statements and the alternate hypothesis that there was a difference in perceptions between the two groups of vocational counselors was accepted.

Implication. Since significant differences at the .05 level were not detected for 81 percent of the role statements, the implication exists that vocational education teaching experience appears not to be a factor in determining the vocational counselors' perceptions of role.

Objective Four, Hypothesis Four

Two secondary school counselors did not provide sufficient data for classification and only one secondary school counselor indicated having vocational education teaching experience without world-of-work experience. Consequently, the null hypothesis that was tested for each of the 70 role statements was that there are no differences in perceptions concerning the role of the vocational counselor in Texas among secondary school counselors without vocational education teaching experience but with world-or-work experience, secondary school counselors with neither vocational education teaching experience nor world-of-work experience, and secondary school counselors with both vocational education teaching experience and world-of-work experience.

Based on the findings of this study, it was concluded that null hypothesis four was accepted at the .05 level of significance pertaining to 64 role statements. The null hypothesis was rejected at the .05 level with respect to six role statements with the alternate hypothesis that there is a difference between the three groups of secondary school counselors being accepted at the .05 level of significance.

The Scheffe test revealed that secondary school counselors without vocational education teaching experience but with world-of-work experience and secondary school counselors with neither vocational education teaching experience nor world-of-work experience varied significantly at the .05 level in regard to five role statements and secondary school counselors without vocational education teaching experience but with world-of-work experience and secondary school counselors with both vocational education teaching experience and world-of-work experience varied significantly at the .05 level with respect to one role statement.

Implication. Since the null hypothesis was supported for 91 percent of the role statements, the implication exists that neither vocational education teaching experience nor world-of-work experience appears to influence secondary school counselors' perceptions regarding the role of the vocational counselor in Texas.

Objective Five

In the interest of conciseness, the following summary is presented regarding background characteristics of vocational counselors in Texas. The "typical" vocational counselor was a 42.5 year old male who had 6.9 years of employment in a field other than education, 1.6 years of vocational teaching experience, 5.3 years of employment as a non-vocational teacher, 14.3 years

of employment in public school education, held a master's degree, and had been employed in his present school district as a vocational counselor for 2.9 years.

Because of the nature of this objective, no overall conclusion or implication could be drawn from the findings. However, it was concluded that contrary to what might be expected, vocational counselors had spent more time teaching in non-vocational areas than they had spent teaching in vocational areas prior to assuming the job of vocational counselor. It was also concluded that the vocational counselors were two times more likely to be supervised by vocational directors than by secondary school principals.

Objective Six

Predicted on the findings of this study, it was concluded that disagreement existed among the four respondent groups in regard to who the immediate supervisor of the vocational counselor should be. Furthermore, it was concluded that vocational directors believed that they should be the immediate supervisor of the vocational counselor. It was also concluded that disagreement existed among the four respondent groups in regard to who exerts the greatest influence upon the role of the vocational counselor in Texas.

Moreover, it was concluded that disagreement existed among the four respondent groups in regard to where the vocational counselor's office should be located. In addition, it was concluded that a dichotomy existed with vocational directors and vocational counselors expressing a preference for the vocational counselor's office to be located near vocational classrooms and laboratories while secondary school principals and secondary school counselors expressed a desire for the vocational counselor's office to be

located with that of the regular secondary school counselor.

Implication. Since different perceptions existed with regard to these three items and since different perceptions existed regarding the role and issue statements, these points taken together reinforce the previously drawn implication that potential conflicts among the four respondent groups exist which could result in internal conflicts, morale problems, and stress within local school districts.

Recommendations

Based on the findings and conclusions drawn from this study and the impressions acquired by the investigator while conducting this study, the following recommendations appear to be in order:

1. A summary of this study should be made available to vocational directors, vocational counselors, secondary school principals, and secondary school counselors in school districts that employ these four categories of personnel so that the opinions expressed by the four groups are known and appropriate action be initiated to reduce role conflict situations which may arise resulting in more harmonious relationships among the four respondent groups in local school districts.

2. Local school districts in Texas that employ vocational directors, vocational counselors, secondary school principals, and secondary school counselors should develop a strategy that would result in greater agreement and delineation of the duties that vocational counselors should perform in local school districts.

3. The Texas Education Agency should initiate a strategy involving vocational directors, vocational counselors, secondary school principals, secondary school counselors, and others, to define more clearly the role of

the vocational counselor in the local school districts of Texas.

4. A summary of this study should be made available to Texas Education Agency personnel, educational administration educators, counselor educators, and vocational educators so that the information can be used as guidelines for developing pre-service and in-service educational programs.

5. Since instrument reliability was determined by a test-retest method and since item by item correlation between pre-test and post-test varied from .14 to .88, it is recommended that a study should be developed to determine the reliability of five-point Likert scales, over time, using a test-retest method.

6. Research should be initiated in order to identify factors that contribute to perceptual variations regarding role among vocational directors, vocational counselors, secondary school principals, and secondary school counselors.

7. This study should be replicated in five years to see if greater congruence of role perceptions among the four respondent groups has occurred.

A more complete report of this research is available upon request from the author.

THE INTELLECTIVE AND NON-INTELLECTIVE CHARACTERISTICS OF COLLEGE STUDENTS

Ronald A. Lewis*

The purpose of this study was to determine if the programs and services offered by Texas A&M University were adequate for counseling students about curricular choices. In order to accomplish this purpose, the following objectives were achieved:

1. To compare the intellective and non-intellective characteristics of undeclared and declared students.
2. To compare the level of satisfaction undeclared and declared students have with the current programs and services available to help them in making curricular choices.
3. To make a list of recommendations to facilitate the adjustment of programs and services for helping students make curricular choices.

The population of this study was those students who entered Texas A&M University as beginning freshmen and attended preregistration conferences during the summers of 1970, 1971, and 1972. These years were chosen so that the students selected would be sophomores, juniors, and seniors at the time the data for the study were collected.

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The data for the study were collected from three major sources. The Counseling and Testing Center records were used to identify the sample and collect test scores. The test scores included the College Entrance Examination Board Scholastic Aptitude Test, the English Composition and Math Level One Achievement Test and the Nelson Denny Reading Test.

An information form was developed and used to record the biographical data for each student in the study. The permanent records of the Registrar's Office were used to record the following data on the information form:

1. Beginning major
2. Changes in major through fall of 1973
3. Hometown
4. Hours earned by Credit by Examination
5. Participation in Educational Psychology 105
6. Hours accumulated through the fall of 1973
7. Whether the subject was still in school
8. Number of semesters completed at the time of dropping from school
9. Grade point ratio

The subjects selected for the study provided the third source of data for study. A questionnaire was developed, field tested for clarity, and sent to each subject for whom an address could be obtained. The questionnaire was designed to collect information on the following variables:

1. Counseling experiences.
2. Satisfaction with choice of major and counseling experience
3. Factors associated with initial choice of major

4. Knowledge of existing services
5. Work experience
6. Parents' income
7. Occupation of father

Data were coded and punched into cards for analysis by the computer. Continuous data were analyzed by one-way analysis of variance with significance established at the .05 level of probability. The chi square test was used to determine significance where discrete data were available. The summary of findings follows:

1. Urban or rural background is not related to whether a student enters as undeclared or declared.
2. A farm background is not related to whether a student enters as declared or undeclared.
3. Most beginning freshmen at Texas A&M University have families with an annual income between 10 and 20 thousand dollars. The annual level of parents is not related to whether a student enters as undeclared or declared.
4. Most students sampled reported some work experience. Work experience in itself was not related to whether a student entered as a declared student; however, there was a significant difference in quantity of work experience. Declared students had more work experience than undeclared students.
5. Most beginning students at Texas A&M University came from families where the father's occupation was managerial or professional. The father's occupation was not related to whether a student entered as undeclared or declared.
6. Declared students scored higher on the Scholastic Aptitude Test,

7. More declared students qualified for credit by examination than undeclared students; however, there is no difference between the two groups in the average hours earned per student.
8. Undeclared and declared students accumulate credit hours at about the same rate.
9. There was no difference in the number of semesters completed before dropping out of school between undeclared and declared students.
10. Declared students had higher grade point ratios than undeclared students.
11. There was no difference in the number of undeclared and declared students who dropped out of school.
12. Both declared and undeclared students were satisfied with their major once a decision was made.
13. Undeclared students change their major course of study more than declared if their first change is considered a change of major; however, declared students change more often than undeclared students if their first change is not considered a change of major.
14. The major reasons students were dissatisfied with their courses of study was that they felt the course work was not interesting and there were no job opportunities available in the field.
15. Most students who entered Texas A & M University had a high school counselor available to them. Few students discussed their choice of major with their counselor; however, of those that did, a significantly larger number entered as declared students.

16. The undeclared students indicated the reasons that they did not select a major upon entering college were because they did not have a goal in mind and they wanted to know more about available majors.

17. Parental pressure on students' choice of major was equal for both groups.

18. Most students of both groups were familiar with the offices established in their college to assist them with their academic problems.

19. Approximately 30 percent of both groups were familiar with the services of the Counseling and Testing Center.

20. Few students were familiar with the office of the Dean of Men, Dean of Women or the Health Center. There was no difference between undeclared and declared students' familiarity with these offices.

21. There is no difference between the degree to which undeclared and declared students take advantage of services offered to them.

22. Students of both groups view the functions of the Counseling and Testing Center to be vocational counseling, orientation, and testing.

23. More undeclared students participate in Educational Psychology 105 than declared students. However, only 17 percent of the undeclared students participated in the course.

24. Most students sampled indicated they would go to their academic advisors and professors for help with an academic problem; to parents, friends, and professors for help with a personal problem;

and to the Counseling and Testing Center and academic advisors for help in selecting a major.

Conclusions

Insofar as the sample for the study represents all undergraduate students who begin their studies at Texas A&M University, the following conclusions seem to be warranted:

1. Students regard parents and friends as their choice of help for personal problems. They regard their academic advisor and professors as the optimum source of help for academic problems and they regard their academic advisor and the Counseling and Testing Center as the optimum source for help in selecting a major.
2. Students do benefit from discussing their plans with their high school counselor; however, not many take advantage of the opportunity.
3. Most students are not familiar with the offices at Texas A&M University established to help them make curricular choices.
4. Most students who do take advantage of the various helping agencies are satisfied with the service they receive.
5. The university can become more effective in dealing with students who need to make decisions.
6. Undeclared students differ little from declared students with the following exceptions:
   a. Declared students have more work experience than undeclared students.
   b. After their initial selection of a degree granting program, undeclared students do not change majors as often as declared

students.

c. Declared students score higher on the Scholastic Aptitude, Math Level I, English Composition, and Nelson Denny Reading rate and vocabulary test.

Recommendations

The following recommendations, based upon the findings of this study, seem appropriate in helping the university become more effective in dealing with students who need to make decisions regarding their major course of study.

1. Encourage high school students to talk with the high school counselor about their choice of major when they make application to the university.
2. The Counseling and Testing Center should provide workshops to acquaint academic advisors with the services available to students who are not sure of their choice of major course of study.
3. Encourage special programs to acquaint undeclared students with the offices established to help them make career choices.
4. The Counseling and Testing Center should establish special services which would be open to any student to help students in evaluating and making career choices.
5. Encourage more undeclared and declared students to participate in Educational Psychology 105.
6. Utilize the local media to publicize the activities of the Counseling and Testing Center.
7. As time permits, hold meetings in dormitories to allow students

to ask questions concerning particular problems they may be experiencing. Programs should be developed describing the steps one would take in making a decision regarding his major and presented to clubs and organizations on campus.

8. Conduct an ongoing research and follow-up program which would evaluate and provide necessary impetus to change programs as they become outdated.

THE VOCATIONAL-TECHNICAL EDUCATION CONSORTIUM OF STATES (V-TECS)--PROGRESS AND PLANS

J. Dale Oliver *

V-TECS is presently composed of 11 members. These members are the States of Alabama, Delaware, Florida, Georgia, Kentucky, Louisiana, Mississippi, South Carolina, and Virginia. V-TECS has two associate members which are the U.S. Air Force Air Training Command, represented by the Community College of the Air Force, and the U.S. Naval Education and Training Command. Several additional states and agencies are contemplating new membership during fiscal year 1976. Optimum membership is thought to be 14 to 16 states and agencies.

V-TECS, which began as a legally constituted consortium on July 1, 1973, has experienced significant growth and development. The primary purpose of the Consortium is to develop and validate catalogs of performance objectives, criterion-referenced measures, and performance guides for learners in vocational-technical education. Methods and prodecures used have been carefully planned and tested to provide assurances that the products developed will be of high quality. Since uniform procedures are used throughout the Consortium, a high degree of confidence is placed in the materials that are shared by member states and agencies.

V-TECHS has the following secondary purposes: (1) to reduce duplication of efforts; (2) to share research and development costs; (3) to improve the content validity of vocational-technical programs; (4) to promote the concept of performance-based instruction; (5) to improve the overall accountability of vocational-technical programs; and (6) to save money.

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Catalog Development and Project Status

V-TECS has 50 projects under development in the nine member states. Twenty-seven of the projects are scheduled for completion during the 1975 calendar year. It is anticipated that 25 new catalog projects will be started during fiscal year 1975-76 and many of these will be near completion by the end of calendar year 1976. Projects presently under development by V-TECS include an occupational analysis of about 200 job titles from the Dictionary of Occupational Titles (DOT).

Of the 50 projects under development, eight of these are in agricultural instructional areas. They are: (1) Agricultural Parts Clerk, (2) Cotton Gin Operator, (3) Floriculture, (4) Landscaping, (5) Nurseryman, (6) Timber Harvesting, (7) Tractor Mechanic, and (8) Turf Management. Table 1 which follows shows the approximate completion date and DOT job titles included and related to the projects. Several of the other projects may be of some interest to agricultural instructors. Examples of these are: (1) Combination Welding, (2) Construction Carpenter, (3) Diesel Mechanic, (4) Industrial Electrician, (5) Masonry, (6) Plumbing, and (7) Small Engine Repair, Internal Combustion.

As the V-TECS catalogs are finished, they are being computerized by OE Code and DOT classification. Catalogs may be retrived for the special requirements of various user groups in vocational education such as curriculum researchers, program planners, curriculum developers, program supervisors and teachers. Computerization provides flexibility in revising and updating the objectives, and in doing commanality studies.

Although the production of catalogs is running somewhat behind the schedule as originally estimated, the V-TECS approach seems to be working quite will. As additional experience is gained, the target dates for product completion should become more realistic.

Table 1. V-TECS PROJECTS IN AGRICULTURAL INSTRUCTIONAL AREAS

Project Title and Approximate Completion Date	Included and Related DOT Job Titles
Agricultural Parts Clerk (Winter 1976)	Agricultural Equipment Parts Man Agricultural Equipment Parts Clerk
Cotton Gin Operator (Winter 1976)	Ginner Yard Foreman Cottin Bailer Gin Clerk
Floriculture (Winter 1976)	Flower Grower Flower Grower, Field Flower Grower, Greenhouse
Landscaping (Summer 1975)	Groundskeeper Landscape Gardener
Nurseryman (Winter 1976)	Nurseryman Laborer, Nursery Nursery Worker Groundsman Moss Handler Bagger & Burlap Man
Timber Harvesting (Spring 1976)	Woods Laborer, Manual Woods Laborer, Mechanized Logging Foreman Logging Contractor Log Buyer Field Man
Tractor Mechanic (Summer 1975)	Tractor Mechanic Tractor Mechanic Helper Farm Equipment Mechanic I Farm Equipment Mechanic II Farm Equipment Mechanic Helper Implement Assembly Repairman Greaser
Turf Management (Summer 1975)	Greenskeeper I Greenskeeper II Sod Production Worker Superintendent, Greens

Plans are being made by member states to disseminate the materials to instructional and supervisory personnel. The dissemination plans include providing in-service training in the techniques of managing performance based instruction. It appears that the V-TECS materials will be extremely useful to teachers. They should help in meeting the basic goal of vocational education which is to assist students to become competent in a career-relevant body of knowledge and applied skills.

OCCUPATIONAL CHOICE, TENURE AND SELECTED ASPECTS OF THE EMPLOYMENT PATTERNS OF MURRAY STATE UNIVERSITY GRADUATES QUALIFYING TO TEACH VOCATIONAL AGRICULTURE

Eldon E. Heathcott*

Purpose of the Study

The main purpose of this study was to compile information on graduates who have received their Bachelor of Science Degree in Agriculture from Murray State University and qualified to teach vocational agriculture during the period July 1, 1967 to June 30, 1973. This study determined the different occupations that graduates had selected, their tenure, and other selected aspects of their employment patterns.

This study also solicited a sincere opinion from each student concerning certain portions of the Agricultural Education program at Murray State University.

Specific Objectives of the Study

In order to accomplish the purposes of the study, the following specific objectives were formulated:

1. To provide a general description of graduates with regard to residence and college attendance.
2. To determine persons having the greatest influence on the students' enrollment in agriculture at Murray State University.
3. To determine initial and current employment, length of tenure, how graduates made contact with their employers, factors that influenced graduates to enter and remain in employment, and gross income from

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first and present employment. In effect, this will help determine a complete job history of agricultural education graduates.

4. To determine the opinions of former students toward selected functions of the Agricultural Education Division at Murray State University.
5. To determine the factors which influenced graduates who had taught vocational agriculture to leave the field.
6. To determine the advanced degrees that graduates have received or have in progress as of June 30, 1973, and the number of professional organizations relating to graduates' occupational areas in which they are a member.

Rationale for the Study

The basic rationale behind this study was the belief that graduates who have received their Bachelor of Science Degree in Agriculture from Murray State University and had qualified to teach vocational agriculture could and would provide helpful information on the quality of the agricultural education training they had received. Many new ideas and approaches have been implemented in the agricultural education program at Murray State University. The Agriculture Department and Agricultural Education Division staffs wanted the follow-up and feedback data from 119 graduates who were putting their training into practice. It was felt that this would enable personnel to make sound changes on what graduates say is needed to strengthen the program.

Design and Conduct of the Study

Following a review of research and literature related to the problem, the major tasks involved in the design and conduct of the study were (1) determining the population for the study, (2) developing an instrument for collecting data, (3) developing a procedure for collecting data, and (4) selecting the method of analyzing the data.

The study population consisted of 119 Agricultural Education graduates from Murray State University for the period July 1, 1967 to June 30, 1973, who had qualified to teach vocational agriculture. Usable responses were received by February 11, 1974, from 100 percent of the study population.

Findings of the Study

This study was concerned with compiling information on graduates who had received their Bachelor of Science Degree in Agriculture from Murray State University and qualified to teach vocational agriculture. Six specific objectives were developed to guide the conduct of the study. Objectives of the study were utilized as a basis for organizing the following summary of the study findings.

Transfer of Credits and Place of Residence of Graduates. There had been 119 graduates of the Murray State program, 98 (82.4 percent) of whom were Kentucky residents and 21 (17.6 percent) of whom were from out-of-state. It was found that 16 (13.5 percent) of the graduates transferred from junior colleges or other colleges in-state, while 17 (14.3 percent) transferred from junior colleges or other colleges out-of-state. Of those who did transfer, 17 (51.5 percent) transferred from 1 to 40 hours, while the remaining 16 (48.5 percent) graduates transferred from 41 to 80 hours. There was a total of 33 (27.7 percent) transfer students and 86 (72.3 percent) non-transfer students in the population studied.

Persons Having Greatest Influence on Students' Enrollment. Persons having the greatest influence on students' enrollment at Murray State University, in order as established by overall frequency of responses, were (1) vocational agriculture teachers, (2) it was their "own idea," (3) father or guardian, (4) a friend presently enrolled, (5) relative other than parents,

(6) other influences such as "Murray is my home," "enjoy agriculture," "wife's idea," and "own idea farming," (7) college agriculture faculty members and other college representative, (8) mother or guardian, and (9) college counselor.

Job History of Graduates. Objective number three revealed that of the 119 graduates' initial and current employment, 55 selected teaching vocational agriculture as their initial employment at annual salary levels ranging from $7,067 for the 1967 group to $8,738 for the 1971 graduates. Fourteen graduates became high school teachers in areas other than vocational agriculture, for which they received salaries ranging from $5,400 to $6,338 per year. Farming was selected by 13 graduates as their initial employment. Because of the variance in information received from this respondents, no mean salary levels could be determined.

Six graduates chose vocational center teaching as their initial employment at mean annual salaries ranging from $8,533 to $9,800. Six graduates were found to be presently in graduate school. For the graduate students it was not possible to determine mean salaries.

Government or non-profit agencies, elementary school teaching, laboratory technician work, farm management and tire companies each attracted three of the graduates for a total of 15 at respective mean salary ranges of $6,800 to $9,100; $6,100 to $7,100; $8,000 to $12,000; $6,500 to $11,000; and $8,367.

The Cooperative Extension Service and insurance each became the initial employment for two graduates. The salary range for the extension workers was $6,500 to $7,000, while that for the insurance employees was $7,200 to $7,800.

Three graduates who began their careers as teachers of high school subjects other than vocational agriculture had the lowest computed mean annual salary,

$5,400. A laboratory technician who graduated in 1971 had the highest mean salary reported, $12,000.

It was found that the 1973 employment areas for the 119 graduates in order of the number of graduates by type of employment were vocational agriculture instructor, 48, with annual salaries ranging from $8,300 for the 1973 group to $10,738 for the 1968 graduates. Farming was chosen as the current employment for 17 graduates. Because of the variance in reported information from these respondents, no mean salary levels could be determined. Seven graduates were high school teachers in areas other than vocational agriculture, for which they were receiving salaries ranging from $6,625 for the 1972 group up to $8,667 for the 1969 group. Six graduates chose government or non-profit agency for their present employment and were receiving salaries from $7,000 for the 1972 graduates up to $12,750 for two graduates. Vocational center teaching and insurance were the types of current employment for five graduates each. The salary range for the vocational center teachers was $9,200 to $10,200, while that for the insurance representatives was $7,800 to $14,100. Farm manager and administrator was the 1973 employment for four graduates each. The salaries reported for the farm managers varied from $6,500 to $11,000, while the salaries for the administrators varied from $7,600 to $13,500. Elementary teacher, feed and seed business, and tire company each attracted three of the graduates, for a total of nine, at the respective mean salary ranges of $7,000 to $8,500; $7,600 to $9,500; and $9,000. Vocational center coordinator, college teaching, others, and presently in graduate school was the current employment for two graduates each. The mean salary for the two vocational center coordinators was $10,756. College teaching or research work salaries varied from $9,300 to $14,000 and others mean salary ranged from $7,300 to $8,400, while it was not possible to compute mean

salaries for the graduates presently in graduate school. Cooperative extension service, banking or farm credit, laboratory technician, other teacher, salesman, agriculture products, and department store manager were the types of present employment for seven former Murray State graduates. The salaries ranged from $7,800 for the category "other teacher" to $11,000 for the department store manager.

The lowest computed mean annual salary was $6,500 for a graduate who began his career as a farm manager. The highest mean salary reported was $14,100 for an insurance representative who graduates in 1969.

When comparison was made between the initial and current employment patterns for all graduates by year of graduation, all groups, except the 1967 group, were quite varied in their employment.

The graduates of 1968, 1969, 1971, 1972, and 1973 were quite varied in the types of initial and current employment. However, for every year except 1972 more graduates chose the vocational agriculture teaching profession as their initial and current employment than any other type of position.

Length of Tenure. A summary of all groups' initial employment patterns revealed that 48 graduates had been employed for one year; 28 graduates, for two years; 18 graduates, for three years; 10 graduates, for four years; 11 graduates, for five years; and four graduates, for six years.

A comparison of all groups' current employment patterns revealed that 51 graduates had been employed for one year; 26, for two years; 14 graduates, for three years; 14 graduates, for four years; 10 graduates, for five years; and four graduates, for six years. Although the graduates have varied in their length of tenure, all reported they were employed currently and had been employed since qualifying to teach vocational agriculture.

Comparison of Ways Graduates Made Contact With Employers. The practices most often followed by graduates to contact their first employer and the number using each method were made inquiry requesting employment, 49; college counselor, 42; farming, 14; teacher placement service, 5; friend or others informed you of the opportunity and presently in graduate school, 3; and college of agriculture placement service, contacted by employer, and other, specify job interview at Murray State University, 1 each.

The practices most often used by graduates to contact their 1973 employers and the number using each were friend or other person informed you of the opportunity, 18; made inquiry requesting employment, 14; contacted by employer, 12; private employment agency and other specify, 4 each; college of agriculture placement service, 2; and college counselor, 1. Sixty-four graduates were on the same job in 1973 in which they first began working, which meant they had utilized no additional methods to contact employers.

None of the 119 graduates used the following methods: answered an ad or listing, friend or others informed you of the opportunity, state employment agency, private employment agency, and presently in military service. In contacting 1973 employers, none of the graduates reported using teacher placement service, job and listing, and state employment agency as practices for contacting their 1973 employers. When compared by practices used to contact their first employers, there appeared to be a consistent pattern whereby most graduates made inquiry requesting employment and/or consulted college counselor for first employment. When compared by years, there appeared to be no consistent patterns of practices or procedures utilized by graduates in contacting their 1973 employers, nor were there any major differences indicated among groups.

Factors That Influenced Graduates to Enter and Remain in Employment.

When a summary was developed of the mean responses of all graduates as to the influence of selected factors influencing them to enter their first employment, the factor which had much influence on the graduates' decisions was "felt best trained in this area." The influencing factors which graduates reported as having some influence on their decisions to enter their first employment were "freedom and independence," "security," "working closely with people," "salary," "good hours," "opportunity for advancement," "wife happy with line of employment," "farming opportunity available," "educational facilities," "prestige of position," "parental home," and "evenings free." Those areas, according to the data, which had little influence on the groups' decisions to enter their first employment were "good recreational facilities in area," "own my own house," and "health factors."

A summary of the mean responses of all graduates revealed the selected factors influencing graduates to remain in their present employment was formulated. The factors which had much influence on the graduates' decisions to remain in their present employment were "freedom and independence of the job," "felt best trained," and "security." The factors which had some influence were "working closely with people," "salary," "opportunity for advancement," "wife happy with line of employment," "good hours," "farming," "prestige of position," "educational facilities," "close to parental home," "own my own house," and "evenings free." "Good recreational facilities in area" and "health factors" were factors in the little influence categories. No mean responses in the very much and no influence categories were found among this group.

Judgment of Former Students Regarding Aspects of the Murray State University Agricultural Education Program. By the graduates' mean responses to eight selected judgment factors it was determined that "the availability of the agricultural education staff for advisement and counseling" was excellent; also

rating excellent was "the degree to which the agricultural education staff is oriented towards student needs." Graduates rated the department good on "helping them secure jobs," "the degree to which they were prepared to effectively work with school and state department administrators," "to plan and maintain physical facilities," and "to order and maintain equipment."

The Agricultural Education Division staff was rated satisfactory in their efforts to prepare graduates "to effectively guide and counsel students in job placement" and "to adequately set up and work with an advisory committee."

Graduates were surveyed regarding their assessment of competency related to teaching vocational agriculture. Competencies rated good by graduates were "professional education" and "FFA advisor." Competency areas which were rated in the satisfactory category by graduates were "cooperative education" and "young and/or adult farmer advisement." Respondents were given an opportunity to add competencies they felt had been omitted from the list which were applicable to a vocational agriculture teacher's position. Because responses to this were so varied, it was not possible to summarize and present them in tabular form.

Factors Influencing Graduates to Leave the Vocational Agriculture Teaching Profession. Comparison of factors influencing 18 graduates to leave the vocational agriculture teaching profession was accomplished by getting the graduates to rate a list of 24 factors.

Factors having some influence on the 18 graduates' decisions to leave the vocational agriculture teaching profession were salary, lack of advancement, too many evening responsibilities, discipline problems, time required for FFA activities, long hours and state reports, little or no opportunity to specialize, personality conflicts with administrators, too few teachers aides and materials available, dislike working with high school students,

over-emphasis of athletics, dislike teaching certain areas of vocational agricultural, and failure to adjust to school schedule and community attitude toward vocational agriculture. The factors which had slight influence on the graduates' decisions to leave the vocational agriculture teaching profession were dislike for adult or young farmer programs, size of community, poor rapport with other teachers in system, and dislike community standards for teachers. The factors community responsibilities, ethnic and religious factors, expected to teach other subject matter areas, too short summer vacations, and wife not happy with vocational agriculture profession had the least amount of influence on the graduates' decisions to leave the vocational agriculture teaching profession. None of the selected factors included on the survey form received very much or much response from any group.

Educational Attainment of Graduates and Professional Organization Participation. There were 37 of the graduates who reported having completed partial requirements (0-15 semester hours) for a M.S. or M.A. degree, while another 18 of the graduates had completed 16 to 36 semester hours of graduate study toward the M.S. or M.A. degree. Thirty-six of the graduates reported holding a M.S. degree or equivalent as of June 30, 1973. Only one of the graduates reported a Rank I or equivalent as having been received. Rank I refers to a planned program of 30 semester house above the M.S. degree. As of June 30, 1973, three of the graduates had a PH.D. or equivalent in progress, while 95 of the graduates had participated in a collegiate graduate program.

Graduates' membership in professional organizations related to employment areas, by year of graduation, was determined. Those not participating in any type of professional organizations ranged from a low of one graduate from the 1968 group to a high of 5 from the 1973 group.

The data revealed that 42 of the graduates were not members of any

professional organizations. The distribution of graduates by the number of organizations attracting the greatest number of graduates were as follows: three professional organizations, 25; two professional organizations, 15; one professional organization, 15; four professional organizations, 11; five professional organizations, 5; six professional organizations, 3; eight professional organizations, 2; and seven professional organizations, 1. Seventy-seven of the 119 graduates held membership in one or more professional organizations.

Conclusions

Inspection and interpretation of the study findings prompted the formulations of certain conclusions by the investigator as detailed below.

1. The Murray State University Agricultural Education program had proven to be equally beneficial for transfer students, both from in-state and out-of-state, and for "native" students. In all cases the program seems to have been flexible in meeting student needs and providing a quality program for qualifying to teach vocational agriculture.
2. University personnel, including counselors, agricultural faculty, and others, have little influence on students' decisions to enroll in agriculture at Murray State University.
3. Placement services and/or personnel at Murray State University were effective in aiding agricultural education graduates in contacting their first employers. However, in contacting 1973 employers, graduates relied primarily on other sources.
4. Graduates entered their first employment and remained in their 1973 employment only after carefully analyzing their own abilities and the benefits the employment offered in relation to their abilities

and personal desires.

5. The Murray State University Agriculture staff was helpful in aiding graduates to secure first employment but had only a minor role in aiding them in contacting subsequent employers.
6. Respondents for the most part received comparable salaries for their first employment and have remained at comparable levels throughout their careers. That is, they have advanced and progressed at about the same rates.
7. Agricultural Education graduates of Murray State University exhibit little mobility in terms of relationship between place of employment and distance from their home counties.
8. As indicated by the fact that 100 percent of the graduates were employed at the time of the study, the Agricultural Education program at Murray State University has been very successful in preparing individuals for gainful careers.
9. The Murray State University Agricultural Education program is flexible enough to prepare graduates for entry and advancement in a wide variety of careers, particularly in those related to agriculture.
10. The Murray State University Agricultural Education program has prepared a substantial number of highly qualified vocational agriculture teachers for entry and advancement in the profession.
11. Former students hold favorable opinions about the department, staff, and quality of education received through the program. The teaching graduates feel particularly well prepared for their professional responsibilities.
12. According to many respondents, vocational agriculture teaching is a very demanding occupation involving many evening responsibilities,

long hours, and relatively few opportunities for advancement, and these contribute to the exodus of some good teachers from the profession.

13. The majority of graduates have continued to improve themselves professionally by participating in graduate programs.
14. Murray State University Agricultural Education graduates on the whole have demonstrated concern for their professions by their membership and participation in professional organizations.

Recommendations

General

1. The agricultural education curriculum at Murray State University should continue to be as flexible enough to meet the needs of non-transfer and transfer students who are planning to qualify to teach vocational agriculture.
2. The Murray State University Agricultural Education Division must take a more active role in placement of graduates.
3. The agricultural staff should strive to inform those patrons who have influence on students about the advantages of majoring in agriculture and qualifying to teach vocational agriculture at Murray State University.
4. The Agricultural Education staff should continue a close relationship with high school agribusiness programs and should seek the opinions of the high school vocational agriculture teachers about potential students and use this in counseling and advisement with students.
5. The Agricultural Education staff should continue to encourage students to qualify to teach vocational agriculture only if they

demonstrate the desirable qualities of a teacher.

6. It is recommended that the Agricultural Education staff broaden their counseling and guidance program for informing students about job opportunities that are available to them upon qualifying to teach vocational agriculture.
7. The Murray State University Agricultural Education staff needs to better utilize the vocational agriculture teachers who are presently teaching to help inform students of the duties and responsibilities of a vocational agriculture teacher.
8. The Agriculture Education Division should establish an advisory committee to aid in deciding curriculum for the Murray State Agriculture Department and to keep the Agriculture Department and Agricultural Education Division as relevant in the future as they have been in the past.
9. The Agricultural Education Division should continue to strive to meet the needs of vocational agriculture teachers and continue the excellent rapport it presently has with the students who have received their degrees and certification in agriculture from Murray State University.

Recommendations for Additional Research

It is recommended by the investigator that it would certainly be valuable in meeting accountability demands if similar research could be conducted in the next four or five years involving former students who have qualified to teach vocational agriculture at Murray State University. A continuing study of former students is a must to help the Agricultural Education Division meet the needs of students and society in the future.

LINEAR PROGRAMMING FOR EDUCATION

Charles Hopkins *

It is important to understand the relationship of data needs to decision alternatives. If we were to choose program expansion as the decision area, the process may be as follows: First, it is necessary to identify the decision point or expected outcome. I have chosen as the decision point that of maximizing entry-level wages as my first alternative. Second, now that a decision point has been identified, the next step is to identify the kind of data that will be necessary. Upon examination, we determine that we need manpower information and student information. These then have to be broken down. Taking manpower first and listing what we need to know, we find these things to be important: (1) Demand data and (2) Supply data. Now let's look at the sub-data needs: (1) Wages, (2) Costs, (3) Placement, (4) Enrollment, (5) Length of training program, (6) Rention, (7) Completers, (8) Source of supply, (9) Level of training associated to the demand, (10) Demand clusters, and (11) Training program clusters. As you can see it is not difficult to identify many data needs. Looking at the student or trainee side of the information we find that these things may be important: (1) Number of students at each grade level, (2) Ages, (3) Interests, (4) Aptitudes and abilities, and (5) Availability. This is not a difficult process, but our work has just begun when we have the data needs identified. The basic problem is that we have so much data that it is almost impossible for all the alternatives to be identified and examined. The derivation process now begins. Computations must be made in detail in order to get all the data in usable form to maximize entry-level wages. We are not through yet. We need to complicate the process a

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*Charles Hopkins, Research Planning and Evaluation Division, Oklahoma State Department of Vocational Technical Education, Stillwater, Oklahoma.

little further. It just happens that we do not have all the resources that we need to establish enough programs to fill all the demand, or to serve all the population desiring our services. What are these resources? They are capital, students, and teachers. As we progress into the decision-making process there are more and more decision areas to be examined. Each of these normally call for additional data or treatment of data. For instance how much money should a state agency allocate between secondary, post-secondary, and adult training programs? Constraints or restrictions must be imposed on decision making. If we did not have constraints or limited resources, decision making related to program expansion would be easy. But, when we have these we must attempt to allocate the resources that will give the greatest return to our investment. This is where we need tools to assist us with the decision-making process.

One tool or technique that has been used is linear programming. This is not a new discovery, but one that is rather new to education. Linear Programming is simply a process that allows the decision-maker to analyze or simulate large volumes of data while imposing several constraints in the analysis. What it does is to make the user identify the objectives to be maximized or minimized. It really forces him to be specific as to what he wants to measure. This is called rational decision making. This is a little new to educational decision-makers but will be necessary in the future to account for the resources allocated.

It is possible to assess many alternatives. We have programmed five alternatives using linear programming. They are as follows:

1. Maximize Entry-Level Wages. Provides for selection of those programs which will yield the maximum wages for students enrolled in a program. The model selected, based upon constraints such as supply, demand, and capital, those programs which provided the highest wage for a student at the completion of a program.

2. Maximize Job Placement. Selects those programs which will provide for the maximum number of students placed on jobs, based upon resources available for training. This objective function is also important in accounting for those who are placed on jobs. Job placement has become a priority in most states and, therefore, is important in the decision-making process concerning program offerings.
3. Maximize Students Served. Indicates which programs should be considered to serve the most students with the resources available. This objective function, as well as all others, would also consider factors such as capital, demand, and supply.
4. Minimize Program Costs. Provides for developing a program mix which incurs a given minimum cost. This objective function was included since tax monies available for training students are limited.
5. Maximize Social Benefits. Indicates that amount of money returned to the economy by students trained in vocational or technical programs. The benefits are shown in the form of taxes and in the dollars saved by the Department of Welfare through vocational-technical programs. This objective function will also be helpful for decision-makers to show legislators how education is assisting in returning tax monies to the state and saving tax dollars by reducing welfare costs.

Using the five objective functions required gathering a large amount of data. The data used consisted of the following: (1) Budget development for all program alternatives, (2) Student supply available at the secondary, post-secondary, and adult levels, (3) Stratifying the supply according to their aptitude and ability, (4) Entry-level wages for each occupation according to the Dictionary

of Occupational Titles, (5) Recommended program training capacity, (6) Number of students available for placement at all levels, (7) Demand data by D.O.T.'s, (8) Taxes paid by the average wage earner trained, (9) Welfare reduction as a result of employing a trained person versus one that is receiving welfare payments, (10) Capital available for training from local, state, and federal sources, and (11) Teachers available from teacher training institutions. This may not appear to be a large amount of data but when you start to develop the subpart data it becomes a very difficult task. Examples of the subpart data is contained in the appendices for reference.

Interpretations and assessment often depends on the individual outlook. If the decision-maker is presented with good facts, then these facts cannot be misconstrued. Use only the essential data to get the desired decision. Do not make the mistake of compiling great amounts of information, dumping it on the decision-maker's desk and then saying, "Here it is." Make a tentative analysis of the data, the alternatives available, the weakness of the data, and the documented source.

When alternatives are presented to the decision-maker care should be exercised by pointing out the impact that the decision may have on the organization. Very few instances exist where the decision does not affect the people or current operations. This is the risk involved but a good analysis of alternatives will reduce risks and help point out the rough spots.

	Cap, Outlay and Annual Oper, Cost	Tot, Annual Stu, Wages	Annual Ave. Entry Level Wages	Annual Demand	% Avail. For Plcmt.	Recomm. Class Size	Stu. Compl.	Avail. For Plcmt.
Voc Agric	47,623	58,800	8,400	61	49	30	15	7
Dist Ed	33,450	34,623	3,848	3,517	45	40	20	9
Hlth Svcs	26,107	37,440	4,160	1,216	46	40	20	9
Hom Ec	36,401	46,904	4,264	1,951	55	40	20	11
Bus & Off	42,407	41,600	4,160	2,063	52	40	20	10
Auto Body	53,153	67,034	6,094	-14	71	30	15	11
Auto Mech	58,533	57,820	5,782	-88	67	30	15	10
Brk Msnry	41,812	87,175	7,925	330	75	30	15	11
Carpentry	38,843	66,814	6,074	717	71	30	15	11
Drafting	26,840	77,220	7,020	141	53	40	20	11
Elec	38,548	63,270	7,030	405	60	30	15	9
Machine Shp	121,687	81,120	8,112	1,247	67	30	15	10
Printing	75,743	46,760	5,845	37	50	30	15	8
Sheet Metal	45,325	85,176	6,552	432	85	30	15	13
Welding	41,728	54,477	6,053	637	61	30	15	9

		VOCAGR	DISTED	HLTHSR	HOMEEC	BUSOFF	AUTOBD	AUTOMC	BRCKMS	CRPNTY	DRFTNG	ELECTY	MCHSHP	PRNTNG	SHTMET	WELDING
WAGES		-58,800	-34,623	-37,440	-46,904	-41,600	-67,034	-57,820	-87,175	-66,814	-77,220	-63,270	-81,120	-26,760	-85,176	-54,477
AGD	≤ 61	7														
DED	≤ 3,517		9													
HSD	≤ 1,216			9												
HED	≤ 1,951				10											
BOD	≤ 2,063					11										
ABD	≤ 0						10									
AMD	≤ 0							11								
BMD	≤ 330								11							
CPD	≤ 717									11						
DFD	≤ 141										11					
ELD	≤ 405											9				
MSD	≤ 1,247												10			
PTD	≤ 37													8		
SMD	≤ 432														13	
WLD	≤ 637															9
Students	≤ 600	30	40	40	40	40	30	30	30	30	40	30	30	30	30	30
Cost	≤ 485,460	47,623	33,450	26,107	36,401	42,407	53,153	58,533	41,812	38,843	26,840	38,548	121,687	75,743	45,325	41,728

DEVELOPMENT AND UTILIZATION OF VIDEOTAPED TEACHING SKILLS MODELS IN VOCATIONAL-TECHNICAL TEACHER EDUCATION

Jack Pritchard *

During the Period 1 July 1974 - June 30, 1975 the Oklahoma State University and the State Department of Vocational-Technical Education entered into a contract to produce 15 teaching skill video tapes of approximately 8-11 minutes in duration.

Those teacher education departments involved in the agreement were Home Economics, OAED and the Agricultural Education department. The Agricultural Education Department was assigned the responsibility of developing, completing, and evaluating pilot tapes of the series.

The objectives of the Project were as follows:

1. Plan and Produce eighteen (18) teaching skills video tapes of approximately 8-11 minutes duration.
2. Produce copies of the video tapes for simultaneous and continuous utilization by each of the six vocational and technical education departments at Oklahoma State University and for dissemination by the State Department of Vocational and Technical Education Curriculum and Instructional Materials Center.
3. Make the video tapes available for student use in an individualized competency based program.
4. Identify resources for use in further study of each teaching skills.

The list of video tapes involved in the project are:

1. Introduction to Questioning
2. Fluency in Asking Questions
3. Probing Questions
4. Higher Order Questions
5. Demonstration
6. Completeness of Communication
7. Discussion
8. Lecture

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*Jack Pritchard, Assistant Professor, Agricultural Education Department, Oklahoma State University, Stillwater, Oklahoma.

9. Use of Examples
10. Planned Repetition
11. Set Induction
12. Stimulus Variation
13. Closure
14. Cueing
15. Recognizing Attending Behavior
16. Reinforcement

The video tapes models were both unique and common models. Unique models were unique in that they were developed in subject matter areas considered unique to that particular vocational teacher education department. Common models were developed in eight areas in which the subject matter was common to all Vocational teacher education departments.

All video tapes used departmental personnel except for those persons associated with University Educational Television Services. Video tapes were recorded on original 2 inch commercial TV color tapes. Departmental color tapes are recorded on 3/4 inch tape. Educational departments and the Vocational Technical Education Curriculum Center have color copies of the set (18) of video tapes.

These video tapes of the eighteen (18) teaching skills identified are available for purchasing by other colleges or universities. Contact Dr. Pete Braker, Curriculum Center State Department of Vocational-Technical Education, 1515 W. 6th Street, Stillwater, OK 74074.

Appendix A

Conference Program

PROGRAM
TWENTY-FOURTH ANNUAL SOUTHERN
RESEARCH CONFERENCE
IN
AGRICULTURAL EDUCATION

Oklahoma State University
Stillwater, Oklahoma
July 29-31, 1975

Tuesday, July 29

11:00 a.m. - 12 noon	Conference Registration -- 201 Ag Hall
First Session	201 Ag Hall Presiding: Robert Terry Department Head Agricultural Education Oklahoma State University
1:00 p.m.	Orientation and Conference Plans Jim Key, Chairman Program Planning Committee
1:15 p.m.	Welcome to Oklahoma Dr. Robert Kamm President, Oklahoma State University Dr. James Whatley Associate Director Agricultural Experiment Station, Oklahoma State University
1:35 p.m.	Key Note - Ag Ed Research - Past and Future Dr. Robert Price, Professor Emeritus Oklahoma State University
2:15 p.m.	Articles of Agreement Report Martin McMillion, VPI & SU James Christiansen, Texas A&M University
2:45 p.m.	States Mini-Reports

Alabama	Kentucky
Arkansas	Louisiana
Florida	Mississippi
Georgia	

3:20	Coffee and Coke Break

Tuesday, July 29 - (continued)

3:40 p.m.	Relationship Between First-Year Teachers' Morale and Behavior Larry E. Miller, Ag Ed Edpartment Virginia Polytechnic Institute and State University
4:00 p.m.	Discussion
4:05 p.m.	National Competency Study - Fruit Production Manyard Iverson, Ag Ed Department University of Kentucky
4:25 p.m.	Discussion
4:35 p.m.	Research Needs Discussion
5:00 p.m.	Dinner on Your Own
7:00 p.m.	Watermelon Cutting - Key Acres

Wednesday, July 30

Second Session	State Department of Vocational and Technical Education 1515 W. 6th Street JB Perky Building Presiding: J.B. Morton, Coordinator of Information Services Research, Planning and Evaluation Division State Dept. of Vocational and Technical Education
8:30 a.m.	Welcome Mr. Byrl Killian Assistant Director State Department V.T.E.
8:40 a.m.	Implementation of Career Education as Perceived by Administrators Charles B. Jones Vocational Director Bryan I.S.D. Texas
9:10 a.m.	Variation Among Occupational Interest Profiles and Choice of College Exhibited by Students at Texas A&M University Jay P. Grimes, Department of Ag Ed Texas A&M University
9:25 a.m.	Discussion

Wednesday, July 30 - (continued)

9:35 a.m.	The Role of the Vocational Counselor in Texas as Perceived by Vocational Directors, Vocational Counselors, Secondary School Principals and Secondary School Counselors Jimmy G. Cheek Department of Ag Ed Texas A&M University
10:05 a.m.	The Intellective and Non Intellective Characteristics of Undeclared and Declared College Students Ronald A. Lewis, Counselor Texas A&M University
10:20 a.m.	Discussion
10:30 a.m.	Coke and Coffee Break
10:50 a.m.	States Mini-Reports

North Carolina	Tennessee
Oklahoma	Texas
South Carolina	Virginia

11:20 a.m.	Progress Report on V-Tecs J. Dale Oliver Ag Ed Department VPI&SU
12:00	Lunch

AFTERNOON TOUR AND PICNIC

Thursday, July 31

Third Session	201 Ag Hall, Oklahoma State University Presiding: Jim Key Ag Ed Department Oklahoma State University
8:30 a.m.	A Follow Up of Murray State University Graduates Eldon Heathcott Murray State University, Kentucky
8:50 a.m.	Discussion
9:00 a.m.	A Linear Programming Model for State Planning Charles O. Hopkins Research Planning and Evaluation Division Oklahoma State Department, V.T.E.

Thursday, July 31 - (continued)

9:20 a.m.	Discussion
9:30 a.m.	Development and Use of Teaching Skills Videotapes Jack Pritchard, Ag Ed Department Oklahoma State University
10:00 a.m.	Research Needs Discussion
10:30 a.m.	Coke and Coffee Break
10:50 a.m.	Report on Research Needs
11:00 a.m.	Business Session Douglas Patterson State Department in Education in Alabama

Appendix B

Conference Participants

LIST OF PARTICIPANTS

ARKANSAS - Dr. James Scanlon
University of Arkansas
Fayetteville, AR 72701

FLORIDA - Dr. Junious D. Brown, II
Florida A&M University
Box 408
Tallahassee, FL 32307

GEORGIA - Mr. Thomas Weaver
Instructor, Agricultural Education
630 Aderhold Hall
Athens, GA 30602

KENTUCKY - Dr. Eldon E. Heathcott
Murray State University
P. O. Box 3221
Murray, KY 42071

Dr. Maynard J. Iverson
Associate Professor
#17 Dickey Hall
University of Kentucky
Lexington, KY 40506

LOUISIANA - Mr. S. B. Langham
Louisiana State University
Baton Rouge, LA 70800

OKLAHOMA - Dr. Robert Price
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Dr. Jack Pritchard
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Dr. James Key
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Mr. George Cook
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Dr. Robert Terry
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Mr. Tobie Titsworth
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

Dr. Marcus Juby
235 Ag Hall
Oklahoma State University
Stillwater, OK 74074

TEXAS - Dr. Ronald A. Lewis
Texas A&M University
College Station, TX 77843

Dr. Jay P. Grimes
Texas A&M University
College Station, TX 77843

Dr. Charles B. Jones
Bryan Public Schools
2200 Villa Maria Road
Bryan, TX 77801

Dr. Jimmy G. Cheek
Texas A&M University
College Station, TX 77843

Dr. James Christiansen
Dept. of Agricultural Education
College of Agriculture
Texas A&M University
College Station, TX 77843

VIRGINIA - Dr. J. Dale Oliver
Associate Professor
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061

Dr. Martin McMillion
College of Education
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061

Dr. Larry E. Miller
Agricultural Education Program
108 War Memorial Gym
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061

Mr. Charles Curry
Virginia Polytechnic Institute
and State University
Blacksburg, VA 24061

Appendix C

Minutes of Business Meeting

Business Session

In the absence of Douglas Patterson, James Key conducted the business meeting. The first item of business was the approval of the Articles of Agreement for the Southern Research Conference in Agricultural Education. After discussion and minor changes the articles of agreement were approved as printed in this proceedings.

THE FOLLOWING OFFICERS WERE ELECTED:

Dr. Dale Oliver, Virginia - Chairman
Dr. Maynard Iverson, Kentucky - Chairman Elect
Dr. Junius Brown, Florida - Secretary

Future locations for the conference were: Louisiana 1976, Kentucky 1977, Alabama 1978, and North Carolina 1979.

The date for the 1976 conference was set for July 27-29.

Current regional research efforts were discussed including the national competency study, the national supply and demand study, and the national salary and working conditions study. A need was indicated for recruitment research and research concerning the duties and responsibilities of Vo Ag teachers during the summer months.

Appendix D

Articles of Agreement

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SOUTHERN RESEARCH CONFERENCE IN
AGRICULTURAL EDUCATION

ARTICLES OF AGREEMENT

ARTICLE I. NAME AND PURPOSE

The name of this organization shall be the Southern Research Conference in Agricultural Education. The general purpose is to:

1. Promote research and development in Agricultural Education in the Southern Region of the United States.

2. Provide, annually, a forum for presentation and discussion of research and development projects and proposals.

3. Provide communication among researchers in Agricultural Education within the region.

4. Assume responsibility, through action of the Chairman of the conference, for compiling an annual report of research completed and in progress in the region and coordinate this with the National effort.

5. Have conference proceedings published by the host institution and distributed to each participant, each head teacher educator and each head supervisor in the Southern Region and the ERIC system.

ARTICLE II. MEMBERSHIP

Any person working in Agricultural Education within the region and interested in research and development relating to programs in Agricultural Education is eligible for membership in the conference.

No dues are charged. A registration fee, set by the Steering Committee, will be collected at the annual meeting to help defray costs of the conference and other expenses of communicating with members.

The Southern Region for this conference includes the following states:

Alabama	Mississippi
Arkansas	North Carolina
Florida	Oklahoma
Georgia	South Carolina
Kentucky	Tennessee
Louisiana	Texas
Puerto Rico	Virginia

ARTICLE III. ANNUAL MEETING

The Annual Meeting will be held at the university, or at a place designated, upon invitation by the Agricultural Education Staff at the host institution.

The place of meeting will be determined at least a year in advance.

The dates and length of the meeting will be determined by the Agricultural Education staff at the host institution, in cooperation with the Steering Committee of the Conference. The dates will be set and announced at least ten (10) months in advance.

The program for the Annual Meeting will be the responsibility of the Agricultural Education staff at the host institution, in consultation with the Chairman of the Conference. It is recommended that specific suggestions for the program be solicited from the membership in the region.

At least one Business Session will be scheduled and held during the Annual Meeting.

ARTICLE IV. OFFICERS

The officers of the Conference shall be as follows: Chairman, Chairman-elect and Secretary. The Chairman-elect and the secretary will be elected at the Annual Meeting. (If a Chairman has not been elected previously this position will also be filled.) The Chairman-elect will become Chairman for the following year. The Secretary may be re-elected. New officers will assume office when elected at the Annual Meeting.

These three officers will serve as a Steering Committee for the Conference. They shall work with the host institution in planning the Annual Meeting and communicate with members as deemed desirable for promoting research and development in Agricultural Education within the Southern Region.

ARTICLE V. AMENDMENTS

These Articles of Agreement may be revised by majority vote of the members at the Annual Meeting.

It is recommended, but not required, that proposals for amendments be sent to members in the states at least 6 weeks prior to the Annual Meeting.

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These Articles of Agreement adopted by the Southern Research Conference in Business Session at Oklahoma State University, July 31, 1975.